

Computer News 80

P.O. BOX 680/CASPER, WYOMING 82602-0680

307-265-6483

MARCH 1994 VOLUME 7 NUMBER 3

\$4.00

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EDITORIAL COMMENT

One of our subscribers sent us a page out of "Electronic Design" August 19, 1993 issue, in which there was a short notice that a licensing agreement was signed between Zilog and Kawasaki Steel Corp. of Tokyo, Japan. The license agreement allows Zilog the use of an enhanced version of the Z80 CPU called the KC80. The Z80 main computer processing chip used in all TRS-80 computers.

What does this mean to TRS-80 users, well it means that the Zilog Z80 family of computer chips "ain't dead yet," even after 15 years of existence. Who knows what will come next. It is claimed that the KC80 CPU can handle 8 bit operations much faster. It also means that these TRS-80 computers are still a computer to be reckoned with as they chug along day in and day out, doing exactly what they were designed to do.

We wish to thank those of you who have been sending in articles helping to spread your knowledge and experience to other TRS-80 users. It is greatly appreciated by us, and we are sure that it is appreciated by your fellow readers. Without your contributions to CN80 we would not be the major source of information that we are.

This issue has an article for the Notebook computers, the first we have had in a long, long time. We hope that you who use the Model 100 and 102s, will chip in and help by sending us your hints and tips on the usage of these computers. We have had several requests from our readers, asking CN80 to provide support for the Model 100 and 102. We are happy to provide the space and a chance for you to share your knowledge in the use of these computers, but we need your help to do so.

If you use a Model 100, 102, 200, or know of someone who does, either ask your friend to submit articles and information or send in yours. It would also be nice if you got your fellow Model 100 or Model 102 user to subscribe if he isn't already a reader of CN80.

MARCH
1994

CN80 MODEL 4 UTILITIES

SOME COMMENTS AND OPINIONS

by Harold J. Hendriks

PREFACE

"Computer News 80" produces and distributes a goodly number of helpful and very useful programs and utilities for the TRS-80 line of Model 4 Computers. I own and frequently use the nine CN80 Utilities and Programs listed below.

MS-UTILITIES

DISK OPTIMIZATION PACKAGE

FBACKUP (FAST BACKUP) PROGRAM

FFORMAT (FAST FORMAT) PROGRAM

MODEL 4 FILE UTILITIES PACKAGE

MODEL 4 SYSTEM UTILITIES PACKAGE

SUBDIRECTORY UTILITIES

SCRIPT SPELLING VERIFIER

SCRIPSIT PRO FX-80 PRINT DRIVER

The first Utility in the list, MS-UTILITIES, was written by David Miller. The eight others were written by David Goben. I find it interesting that both of these very gifted writers of excellent and useful programs for our beloved Model 4 computers is named, "David". In the Hebrew language "David" means "loved" or "beloved". I love my Model 4P and I love the Utilities and Programs which the two Davids have written.

The CN80 Programs and Utilities listed above are powerful, yet convenient and easy to use. They make it possible for me to use my TRS-80 Model 4P Computer more efficiently and effectively. Mere words are not adequate to express fully how much I appreciate and value them.

The original version of MS-DOS was a weak, bare-bones DOS. If such powerful and useful utilities, as the above, had been included as part of the TRSDOS/LS-DOS 6.x DOS package, I think there is a possibility that a version of LS-DOS 6.x might have been adapted for use with the so-called PC Computers and Clones in lieu of MS-DOS. It's interesting to speculate and play the "What If?" game.

If David Miller and David Goben had been writing and selling software for the Model 4 line of Computers in the heyday of the TRS-80 Model 4, the Model 4 Computers might have enjoyed even more popularity than they did, and hence, I believe, Tandy might have continued manufacturing and supporting the Model 4s several years longer than they did.

DOCUMENTATION

CN80 documentation rightly assumes that the user of the program is reasonably computer literate with a rudimentary working-knowledge of the fundamental DOS commands and with some basic "know-how" in using a computer. It is not "geared" to the illiterate novice or the ignorant and inexperienced computer user - nor should it be expected to be.

I am happy that the CN80 Documentation is written in a focused, concise, heads-up style. Some inexperienced and/or novice computer users may find that the documentation doesn't provide quite enough "hand holding" details and computer minutiae for them to understand and to effectively use all the features of some of the programs.

Help in acquiring an elementary computer vocabulary and an understanding of fundamental concepts is available in any good library. Every novice or inexperienced user should take the responsibility for doing his or her own homework.

If more help is needed, it is available. "Computer News 80" is ready, willing and able to give a reasonable amount of support to anyone who purchases any Program or Utility which CN80 distributes and sells. However, as I see it, the ignorant and lazy computer novice has no right to demand, or even to expect CN80 to hold his hand and educate him. CN80 cannot do for him what he is not willing to do for himself.

The documentation packages for the CN80 Utilities and Programs listed above are more than adequate for making easy and effective use of them. The Manuals are well-written and understandable. Judged on the basis of clarity and usefulness, the documentation is, on average, several cuts above the typical software documentation package.

The CN80 Documentation packages are neatly and clearly printed. They are, for the most part, in the form of 8.5x11 inch, spiral-bound booklets with attractively printed covers made of heavy, postcard-weight paper. The 48-page Manual for the "MODEL 4 SYSTEM UTILITIES PACKAGE" is the thickest one of the group of nine which I own, while the 4-page Manual for the "FX-80 PRINT DRIVER FOR SCRIPSIT PRO" is the thinnest one of the group.

Of the CN80 Programs and Utilities which I own, the documentation for both the "FBACKUP" Program and the "FFORMAT" Program, is not in the usual spiral-bound booklet form. Instead, the small set of 8.5x11 inch instruction sheets for each Program is stapled to a heavy, postcard-weight

backing sheet. At first glance the documentation for these two very excellent, powerful and convenient Programs may seem to be somewhat sparse. But in reality, the documentation is clearly written and more than adequate for making easy and effective use of each Program.

MANUAL? MANUAL? WHERE'S THE MANUAL?

I keep the Manuals for my "Model 4 Operating System", "SCRIPSIT Pro", "Allwrite", "Profile 4 Plus", "Super Utility", etc., etc. on two tiers of shelves up above my computer desk. Initially I kept the "sheaf" of CN80 spiral-bound Manuals and stapled-sets of Instruction Sheets loosely-wedged between two of my larger and thicker manuals on the shelf.

The spiral-bound Manuals and stapled-sets of Instruction Sheets are all too thin to have a spine wide enough to display the name of the Program or Utility on the spine of the documentation package. There was no way to identify which one was which by simply looking at the lot of them sitting up there on shelf between the two large application manuals. If I had only two or three thin manuals, the identity problem would have been minimal. But with nine sets of documentation, there was a problem.

Whenever I had a need to refer to one of the Manuals or instruction sheets for a CN80 Program, I had to pull down the handful of documents and shuffle through the lot until I found the one I was looking for. Shuffling through the manuals was an exercise in inefficiency and frustration. Worse yet, the constant shuffling of the manuals began to take its toll on the well-being of the plastic spiral bindings and on the paper covers. There had to be a better way. I found it!

THE END OF SHUFFLING

All the Manuals and stapled-sets of Instruction Sheets for my nine CN80 Model 4 Utilities and Programs are now neatly and conveniently bound in a three-ring, loose-leaf notebook. I removed the plastic spiral binding or staple from each booklet, but kept the front and back covers intact and in place. Using a heavy-duty, three-hole standard notebook punch I punched holes to fit the rings of the notebook in the covers and pages of each manual. I arranged the order of the Manuals and/or sets of Instruction Sheets in the notebook in order of frequency of use. Those that I use most frequently I placed near the front of the notebook and those I use least frequently I placed near the back.

The front and back covers for each manual make for good dividers between them. In addition, I placed a heavy-duty 8.5x11 inch notebook index-divider sheet between each manual. The plastic index tabs on the dividers hold inserts on which I typed the names of the utilities or programs. To finish off my shuffle elimination solution, I placed self-adhesive identification labels on the spine and the front cover of the notebook.

In some cases the holes I punched in the pages of the Manuals to fit over the rings in a standard three-ring, loose-leaf notebook came very close to or intersected with the small rectangular holes that previously had been punched in the pages to accommodate the spiral binding. I used Avery self-adhesive Reinforcement Rings to reinforce the holes that needed reinforcing.

My loose-leaf notebook containing the documentation for the nine CN80 Model 4 Utilities and Programs sits conveniently and securely upright on the shelf with my other manuals. Now when I want to refer to the documentation for one of the CN80 utilities or programs, I pull down the notebook and use the index tabs to quickly locate the information I need. It's much better than shuffling through a stack of thin, spiral bound booklets. As an added bonus, the notebook keeps the documentation in mint condition. Hurrah! No more shuffling of Instruction Manuals.

SPECIFIC COMMENTS

My purpose in writing this article is to give the readers of "Computer News 80" a broad-brush perspective of the CN80, TRS-80 Model 4 Programs and Utilities which I use. It is not my purpose to provide a detailed commentary on each and every one of them. Due to space limitations I will limit my comments to only three of the Utilities or Programs which I find to be the very useful. Please do not assume that the other six CN80 Utilities or Programs that I own and use are not useful. If sufficient interest warrants it, commentaries on some of the other CN80 Programs and Utilities may be forthcoming in future issues of "Computer News 80".

MS-UTILITIES

David Miller's "MS-Utilities" is a must-have utility for anyone who works in both the "TRS-80 Model 4 world" and the "MS-DOS world". "MS-Utilities" provide the fastest, easiest and most convenient way available to transfer text and data files back and forth between a TRS-80 Model 4 Computer and an MS-DOS Computer. David Miller's Program is a real boon to those of us who work with a Model 4 as well as with an MS-DOS Computer. Every time I use "MS-Utilities" I send up a silent prayer of

thanks to David Miller and CN80.

"Computer News 80" has published a number of supplemental articles written by David Miller on using his "MS-Utilities". I photocopied David's supplemental articles and then inserted the copies into my Utilities Notebook in the section with the Documentation for the "MS-Utilities". David's supplemental articles make a very useful addition to his Manual.

FFORMAT and FBACKUP

You won't believe the speed and the power of these two Programs until you see them in action with your own eyes. TRSDOS/LS-DOS 6.x "FORMAT" and "BACKUP" are like creeping, handicapped turtles compared to "FFORMAT" and "FBACKUP". A Model 4, 4P or 4D Computer with 128K of memory makes much more effective use of the power and speed of "FBACKUP" than does a 64K computer, although it still run faster on a 64K Model 4 than does the TRSDOS/LS-DOS 6.x counterpart.

I have a Model 4P with 128K of memory. The first time I used "FBACKUP" to backup a group of files from one diskette to another diskette, I blinked in wide-eyed amazement and disbelief as I watched the program speedily read and copy the files.

When the "LS-DOS Ready" prompt flashed on the screen to notify me that the backup operation was complete, I couldn't believe it. I was sure that the program must have malfunctioned and had not completely copied all the files from one disk to the other disk. To satisfy my sense of disbelief, I printed out hard copies of both directories. Sure enough, the directories showed that all the files had been copied. I still couldn't believe it, so I used the "List" command to check out the files on the destination drive. To my amazement, I found that all the files were present and complete.

The "FFORMAT" and "FBACKUP" Programs are very convenient and easy to use and very flexible and powerful. In addition to being very fast, each program provides considerably more convenience and flexibility of use than the corresponding TRSDOS/LS-DOS 6.x Utility. If you spend quite a bit of time formatting and/or backing up files, don't waste any more time waiting for the slow "FORMAT" and/or "BACKUP" to do their jobs. Order "FFORMAT" and "FBACKUP" without delay. You will be glad you did! I'm glad I did.

-Harold J. Hendriks

ZONE/BAS PROGRAM

by Robert Knowles

I'm reading a book on basic by Michel Boillot and L. Wayne Horn, I think I understand basic but as I said if you want to teach yourself programming read everything about computers you can lay your hands on, the more you learn about how and why the better programmer you will be. In this book they have exercises and give the idea as to how to do it, I didn't copy the program from the book, I wrote my own. You should never copy a program from a book and send it in as your own, you could cause yourself a lot of trouble because most programs have a copyright and to claim one as your own will make the owner very unhappy. Even though it is an old book, if you look in the front of the book you will see that most copyrights are updated and are still in effect.

The charges are not right, shipping charges are best known by the shipping companies, I wrote this as an exercise (you MUST practice), then I thought "what is the point of doing all this work just to put it in the disk box, maybe someone can learn something from it".

To me it looks very complicated but don't let that bother you, if all you do is the simple programs then all you will be able to do is the simple programs and that's no fun, it gives you a great feeling of satisfaction to try something that you have no idea how to do and have it come out well.

Line 10 tells us what the program is for, line 20 I have found out that people like to know "who wrote this thing", line 30 is clear the screen, line 40 is an input line as to which zone you would like, I broke the program up into four zones, there are more then likely more zones but this is enough for now and there is a much more efficient way of doing this but I think this is much easier to understand. line 50 is just an escape, much neater than pressing break, line 60 is the gosub line, you choose which zone you want 1,2,3 or 4, enter it at the input line then it is tested at the escape line to be sure it's 1 to 4 then to the gosub line to select the zone you want, line 70 is the zone we select, line 80 is input weight and line 90 is for miles, line 100 is cost per pound and must be changed for each zone (I think that's the way it works, a different charge for each zone), then line 110 is cost per mile and doesn't change, line 120 is enough to make you nervous, how could anyone understand that? Its not to bad, everything is identified, TC is total cost and is what the total of everything is put into and W is weight times CP which is cost per pound in Parentheses so that it is done by itself then we have a plus sign

because we want to add these two formulas together, the second formula is MD for miles distance times CM for cost per mile, line 130 is goto 320 which is the image line, why do we need an image line? If you look at cost per pound and total cost you will see that they should have an image line to make them look good, we should always make our programs look as good as we can, if we do a good job the boss will not say a word but if you don't do a good job the boss WILL tell you all about it, line 330 is to print our headings, line 340 is to put our inputs in place, line 350 is goto 40 so that we can do the next package.

If you will look at line 310 you will see goto 320, well 320 is the next line and the program will fall through to it anyway so we don't need that line and we can take it out. If you find a line that has no use then take it out but if you think the program would look better or work better with a line you thought up then by all means put it in and if the program doesn't work then you just take it out and keep thinking.

I didn't explain each and every line because it would be a waste of your time and magazine space to say the same thing over again four times, well, that wasn't as bad as I thought it would be, you just have to wade in and do it and when you begin to understand it then like magic its no problem.

Its nice to have the program print on the screen but you should also have a hard copy and its good practice to get the program to print on the screen and do a hard copy and that is no problem, all you do is at 341 and 342 make a copy of 330 and 340, instead of print you put lprint.

-Robert Knowles

FILE CABINET ALGEBRA REVIEW

by David K. Berg

If you have a child in high school who has trouble in algebra, the algebra programs on the Model 1/3 File Cabinet education disks 10 (M3EDU10), 11 (M3EDU11), and 22 (M3EDU22) have some good information and practice. They could also be used as a self-study course for anyone wishing to learn algebra or to "brush-up" on past learning. Model 4 users can also use these programs in the Model 3 mode.

This will not be an "in-depth" review because the

programs themselves go step by step and provide the in-depth exposure by their very use. Rather, this review will be to let people know that these programs exist among the many hundreds in that gold-mine collection known as the File Cabinet, and to tell a little bit about them.

I have a TRS-80 Model I at home. Several years ago my daughter was failing algebra and I attempted to order all the File Cabinet disks I could find that had algebra programs. In retrospect, looking at the File Cabinet catalog again, I see that I missed one: FACTORS/BAS, instruction and game on factoring, disk 5 (M3EDU05). Unfortunately, I didn't order that disk and can't tell you anything about that program.

The ALGEBRA/BAS programs on disks 10 and 11 have the same name but are different programs by different authors. ALGEBRA/BAS on disk 10 teaches algebraic factoring in six different ways. ALGEBRA/BAS on disk 11 is a comprehensive overview program. ALGEBRA1 and ALGEBRA2 on disk 22 are short programs by the same author to practice finding the value of "x" in algebraic equations. All of these programs are interactive with the user and are self-checking.

(Please see continuation of this article and screen representations in the program listing section.)

THE NOTEBOOK CORNER

For Tandy Models M100, T102, T200, NEC 8201A

VOYEUR A Dump with a BASIC Difference

by James Main Kenney

One of the principal features of the Kyocera notebooks, such as the Radio Shack TRS-80 Model 100 and the NEC PC-8201A, is their use of low-power (CMOS) static RAM which can store multiple files for long periods of time using only battery power. This convenience tempts users to keep original programs and other valuable files in RAM without adequate back-up, with disastrous results should a "cold start" (system reinitialization) occur unexpectedly or be required by a locked-up program. A cold start removes all user filenames from the menu and the system directory, but the "dead" files remain in RAM until overwritten. Recovery procedures have long been used to salvage dead text (.DO) files, but dead tokenized BASIC (.BA) files have been considered unrecoverable.

VOYEUR is a general-purpose "dump" program which can be used to explore memory (and even alter it), and which has the (unique?) ability to translate the "tokens" in .BA files into the keywords they represent. By itself, this is useful in revealing details of .BA file storage (such as the colon placed in front of every "ELSE" token) which may be of special interest to BASIC programmers. VOYEUR also converts to decimal the line numbers, which are stored in 16-bit binary form. By saving to text files these and other components of BASIC programs, dead .BA files can be translated into ASCII listings identical to those obtained by normal .DO saves of live .BA files. For exploring M100 memory, Carl Oppedahl's book "Inside the Model 100" (Weber, 1985) is a valuable tour guide.

Two versions of VOYEUR have been developed: T-1.0 for the Tandy M100, T200 and (untested) T102, and N-1.0 for the NEC 8201A and (untested) 8300. These will be referred to here as VOYEUR-T and VOYEUR-N, respectively, where a specific reference is needed, and will be posted as VYRT10 and VYRN10.

Instead of displaying an array of hex numbers, as "dump" programs commonly do, VOYEUR fills the screen, except for the bottom line, with characters representing the data bytes at 280 successive memory locations in the M100, T102, and 8201A, and 600 in the T200: far more than is possible for a hex dump, and text appears in an easily readable sequence. Information about any byte, including data not available from a hex dump, can be read at the bottom of the screen by moving the cursor over the character representing it. For data such as control code for which no characters have been defined, characters defined for other bytes are used and are distinguished by the use of reverse video. (Since the 8201A does not provide characters for bytes 131-255, there are not enough characters to avoid ambiguity; as listed, VOYEUR-N makes no provision for displaying or filing user-defined characters, but can be easily modified, in lines 1 and 20, to do so for specific byte ranges.)

OPERATING VOYEUR 1.0

When VOYEUR is entered, its operating instructions are tersely outlined on three successive screens. A prompt at the first allows VOYEUR-T to run on the M100 or T102 if key "1" is pressed, and on the T200 if key "2" is pressed; pressing any other key permits automatic selection of machine type using a ROM PEEK (at address 1, holding 51 in the M100 and 171 in the T200). It is possible that this automatic selection may not work properly on all machines, especially the untested T102. For VOYEUR-N, press any key at this point (except

"SHIFT", etc!)).

At the second-screen prompt, enter an address for the scan to start at, or press only "ENTER" (equivalent to the hooked-arrow return key on the 8201A, to which it will henceforth refer for VOYEUR-N operation) to select the file directory in system RAM, which can be recalled later with key "D". (For all operations, upper or lower case letters may be used.) The address prompt can also be recalled later, with key "A".

The third-screen prompt is for a search list, which may be useful at this point for quickly locating filenames in the directory: Enter the names, or parts of names, using extensions only after becoming familiar with directory protocol. The search prompt, which can be recalled later with key "S", will be discussed below in greater detail, and can be skipped at this point by pressing only "ENTER", after which scanning will start automatically. Stop the scan at any point with (almost) any key, or it will stop after the screen is filled. Restart scanning by pressing only "ENTER".

With the scan stopped, use the arrow (cursor) keys, the spacebar, or the backspace key to position the cursor. For faster movement, note that the cursor will wrap around at opposite edges of the screen, including top and bottom and even between the display ends (bottom right and top left). Holding down the shift key while pressing an arrow key causes the cursor to jump, the horizontal jump matching the filename spacing in the directory. The cursor will seem less sluggish if hex numbers, toggled on or off by key "H", are not displayed.

The address and byte (ASCII value) for any character displayed can be found by moving the cursor over that character and reading the separate decimal and (optional) hexadecimal values on the information line at the bottom of the screen. Between the decimal and hex values is a copy of the character which, since it does not blink with the cursor, allows normal and reverse video to be distinguished. Appearing at the left end, for bytes above 160, is the character for the byte reduced by 128. (For VOYEUR-N, this is useful only if there are user-defined characters for these bytes.) A copy of any character already in the printable 7-bit ASCII range will also appear here.

To the right of the hex values or replacing them, also as an option, is the BASIC keyword, if there is one for that byte, or the BASIC line number (or other decoded number, for the 8201A), or any uncoded .BA file character. Next, in decimal form, is the 16-bit binary value of the bytes represented.

by the character under the cursor (high-order bits) and the character to its left (low-order bits). While copying to a file, the letter "F" appears at the right end.

Run (step forward automatically) with key "R", which is equivalent to repeated presses of the right arrow key or the spacebar. Unlike scanning, running prints to the information line and permits copying to a file. Running makes copying much easier than manual stepping and, unlike the latter, does not wrap around at the end of the last line: the screen will scroll and running will continue automatically with new addresses, allowing a large area of memory, such as a file, to be copied without intervention. There are two running speeds: slow, without hex numbers, and even slower with them!

A file to copy to can be opened or closed by toggling key "F". When opening, the "File" prompt is presented at which a filename can be entered or the default name accepted by pressing only "ENTER". The default name consists of the letter "A" followed by the decimal address of the character that was under the cursor; this effortlessly provides a record of the exact starting address of copied material. Scanning, or stepping the cursor in any way except forward in single steps, automatically closes an open file, thus insuring an accurate copy.

Press key "A" and the "Address" prompt will reappear using the 16-bit binary value less one as the default entry. Press only "ENTER" to accept the default, or enter any other address in decimal (-65536 to 65535) or hex (0 to HFFFF). Hexadecimal entries at all prompts must be prefixed by "H" or "h", and upper or lower case letters may be used interchangeably. Note that the two characters immediately preceding each filename in the directory represent the bytes forming the binary address of that file; place the cursor over the second, just in front of the filename, press key "A" and then only "ENTER".

After the address is entered, the character for the byte at that address will be displayed under the cursor. If the address was on the screen, the cursor will move to that position; otherwise it will stay where it was. Press key "C" to clear the screen and move this character to the upper left corner, then press "ENTER" to scan or keys "F" and "R" to copy, pressing key "B" first if BASIC decoding is desired. Alternatively, starting the scan without clearing the screen allows a split-screen comparison of different areas of memory.

To display other address ranges without using the

address prompt, scan or otherwise move the cursor to the end of the character display, at bottom right.

Pressing "ENTER" will then scroll the display and restart the scan for new addresses, with automatic scrolling enabled for successive lines. Alternatively, pressing key "T" will "turn the page": clearing the screen and restarting the scan with the character for the next address in the upper-left corner. Pressing key "N" or key "L" will, at any cursor position, change the address to the next or last "page" without moving the cursor, i.e., it jumps by the display size (280 or 600 bytes); repeated presses can quickly cover a large range.

OPERATING VOYEUR 1.0

The "Search" prompt has been mentioned: for a list of strings, any one of which will halt the scan or a run. To search for other occurrences of the character under the cursor, press key "S" for the prompt and then press "ENTER" only. Then, or instead, enter one or more bytes in decimal (0-255) or hex (0-HFF), or enter one or more strings of the same length such as individual non-numeric characters. Non-numeric strings or higher-valued (>255) numeric strings can be entered in bunches of any length, but the length of the string searched for is determined by the length of the last entry. Enter a dummy non-numeric string to adjust if necessary, e.g., "xxxxx" for a 5-character search. A reminder of the string length that will be searched for is provided after each entry. A search for more than one multi-character string will possibly yield "hits" on unwanted sequences formed from adjacent entries; an unlikely dummy string can be entered as a separator if this is a problem.

To search for a string of only numeric characters, or with leading numeric characters, having a value less than 256 (e.g., string "72", not to be interpreted as byte 72, which is character "H"), first enter the string with any non-numeric prefix ("x72") or any numeric prefix or suffix forming a number larger than 255 ("772" or "722"), and then enter a dummy non-numeric string ("xx") equal in length to the original string. A careful distinction must be made between digits entered this way as string characters, and digits entered as bytes; e.g., character "0", ASCII 48, must be entered as "48" or as "x0" and "x"; byte zero, the null, is entered simply as "0". Entering "999" causes the entire search list to be cleared, confirmed by "0 byte search?". Following an entry, the search prompt remains in order to facilitate multiple entries and to display the search string length; terminate by pressing "ENTER" only. A very long search list may result in an "OS" (out-of-string-space) error, requiring an increase in the size of the "CLEAR255" statement in line 0.

Another prompt, "Poke", allows the replacement of data in RAM (M100, T102, and 8201A addresses above 32767 and T200 addresses above 40959, with full expansion). With the cursor over the character representing the byte to be replaced, press key "P" for the prompt and then either accept the default byte by pressing only "ENTER", or enter the new byte as a decimal number (0-255) or hex number (0-HFF) or as a non-numeric character. Numeric characters (digits 0-9 used as strings) must be entered as their ASCII values (48-57). Immediately following a poke, the default for the next poke will be the same byte, facilitating multiple pokes of a single byte. Immediately following a search, the default will be the last byte entered at the search prompt, allowing the character under the cursor to be copied by pressing key "S", tapping "ENTER" twice, then moving the cursor to the desired address and pressing key "P" and "ENTER".

Tandy users should normally confine their pokes to addresses below MAXRAM (62960 for the M100/T102, 61104 for the T200). The inveterate time-traveller (specializing in January 1, 1900) may wish to experiment by poking in the operating-system area above MAXRAM. Even at lower addresses, however, poking requires great care (and backed-up files)! The NEC equivalent of MAXRAM is 62536 (both contain 77, ASCII "M").

The most outstanding feature of VOYEUR is its ability, toggled on or off by key "B", to decode BASIC tokens, bytes that represent keywords when a BASIC program is saved as a .BA file. These tokens constitute much of the "garbage" we are told to discard after recovering data from a cold start. For bytes used as tokens, the keywords appear on the information line; for other bytes, the characters are duplicated in the same position for easier reading of a sequence. The decimal line number is also printed in this position. For the 8201A, an additional BASIC decoding is necessary: of all other program numbers; these also appear in decimal form in this position.

When copying to a file with BASIC decoding on, the keywords or decimal numbers are sent to the file in place of the bytes (tokens or binary code) representing them. The 16-bit binary address of the following line, which precedes each binary line number, is omitted. For the line number, the conversion to decimal is made when the cursor is on the preceding null. In VOYEUR-N, the conversion of other numbers, above 9, is made with the cursor on the prefix (byte 13, 14, 15, 28, 29, or 31). When the cursor is on the other characters representing a number, nothing appears at the keyword position, or is filed, if the cursor is moved

from left to right in single steps; for other cursor motions (which close the file), incorrect translations may appear, such as a keyword for a binary-number byte.

With BASIC decoding off, characters which are displayed in reverse video are filed with caret ("^") prefixes if not otherwise displayed by TEXT in this way. If started at the null preceding the program, without having stepped right from another null, VOYEUR-T can always copy a tokenized (.BA) program to a file as a perfect ASCII (.DO) listing, which can then be loaded as-is except for deleting a CR/LF at the beginning and extraneous material at the end, exactly reconstructing the original .BA file. VOYEUR-N can perfectly copy itself and most other programs, but there can be errors in long real numbers (over five figures) and it is conceivable that other errors may result from undiscovered peculiarities of the complex NEC BASIC.

Return to MENU by pressing the escape key ("ESC").

FILE RECOVERY WITH VOYEUR

VOYEUR can be valuable after a cold start in recovering BASIC programs from tokenized (.BA) files. It can also be used to salvage ASCII text (.DO) files. During recovery, VOYEUR should read the original "dead" files since the nulls which trigger the reading of line numbers, and which may be part of them, are deleted during conventional recovery to a text file. Also, VOYEUR cannot easily copy to a file while reading another "live" text file, since the latter is periodically shifted upward in RAM as blocks of the new file are inserted beneath, causing repeated reading of the same data.

Loading VOYEUR will destroy almost 3KB of dead code near the bottom of RAM unless the dead files are first shifted higher by running a small relocation program. For the M100 or T102, with 32K of RAM, enter BASIC and type

```
FORA=59000TO32768STEP-1:POKEA+3000,PEEK(A):NE XT:BEEP
```

then press "ENTER". Running time is about five minutes. Although untested, a 4K shift starting at 57300 should be adequate for the 8201A. For the T200, replace 32768 with 40960 and start at 57100. Limited experience with relocation suggests that 62000 (59000+3000) is about the highest M100 address to which files should be poked; attempts to poke higher (but below MAXRAM) have resulted in error messages and even in lockups requiring new cold starts! Although untested, 60100 may be about the limit for poking in the T200, and 61300 in the

201A, based on the similar appearance of system "garbage" at higher addresses. Starting even lower may be safer, although file code above the starting address will be destroyed. With RAM fully packed, a choice may be required as to which files to sacrifice. Fortunately, the most recent files, least likely to have been backed up, tend to be located near the middle of RAM, above the older .BA files and below the older .DO files, so that the relocation program may not be needed or, if used, may not damage anything of importance.

If RAM must be used for the recovered files, the shift may need to be greatly increased (with a corresponding reduction in the starting address) in order to prevent dead .BA files from being overwritten, before they can be read by VOYEUR, by the larger live .DO versions being created. Dead files can be relocated more than once: load VOYEUR after a 3K shift in order to survey RAM prior to a second shift.

Load VOYEUR in .BA form, via tape or a ROM based DOS. Loading a .DO version of VOYEUR or a RAM based DOS would use much more space. For TS-DOS in ROM, first activate the chip from BASIC by entering

CALL63013,1

Enter VOYEUR to copy with BASIC decoding on to rescue .BA files, and off for .DO files. Scan to find the start of a dead file to be recovered, place the cursor over the null preceding a .BA file or over the first text character in a .DO file, then press key "F" for the filename prompt. For recovery to disk using TS-DOS with a TPDD2, enter each filename with the bank prefix "0:" or "1:". For recovery to tape (untested), use the prefix "CAS:".

If another computer is available, VOYEUR and the recovered files can be transferred via a null-modem cable. Transfer VOYEUR as a .BA file to the cold-started machine by first loading it into BASIC of the other (similar) machine; then, from BASIC, LOAD in the cold-started machine and SAVE in the other, in that order, using for both the filename of "COM:" followed by five communication parameters, such as "68N1E". In the "rescue" machine, enter TELCOM terminal mode and prepare to download using regular names for the recovered files. When copying files in VOYEUR, enter at the filename prompt "COM:68N1E", e.g., using the same communication parameters for both machines. It is fascinating to watch two computers side by side displaying on one screen the original tokenized program being read, and on the other the

ASCII equivalent as VOYEUR translates.

If RAM files in the cold-started machine must be used for the recovered text, start with the file to be recovered that is lowest in memory and always work upwards. Copying should not start too close to VOYEUR; either use a large relocation shift or leave a buffer of sacrificed files. These can first be saved to paper by entering the filename "LPT: "; the colon is essential even though nothing follows it. It may be thought that ASCII text overgrowth could be limited by trimming, loading, saving in .BA form, and then KILLing the .DO version immediately after recovering each file. KILLing a file, however, or even trimming its ends, results in an overwrite with nulls of "unused" RAM, totally destroying the earthly remains of all deceased files.

To minimize the size of recovered files and to make recovery less tedious, an automatic stop at the end of each dead file will help. Setting a search for a sequence of three nulls will stop the run at the end of a .BA file: press key "S" for the search prompt, enter three zeroes individually, and then enter "xxx" as a single string. A sequence of three nulls can occur within a program (in binary numbers), but if a stop occurs before the file end, pressing key "R" again will restart the run without a glitch. If .DO files are to be saved, enter a search for byte 26, the EOF (end-of-file) marker, but only after all .BA files have been saved, since the string length searched for is different (and remember to copy with BASIC decoding off).

Trim and load the rescued BASIC files only after all files have been recovered.

-James M. Kenney

REMINDER

If the last four digits on your mailing label are 94/03, then this is your last issue. Time to get your renewal in the mail.

MOVING?

Remember to send us your new address.

A VISIT WITH DAVID GOBEN

by David Goben

I've got a lot of territory to cover this time, which seems to be a per usual item in this column. I'll answer a few queries on what is becoming a user-defined proposal for a BCX version 2 spreadsheet, prompted in great part by my column last month. By the way, all of these features already exist in a dozen or so different "experimental" version of BCX that I have developed over the last 3 years to test various ideas, but have never been released, nor will they in their individual form. Put together, they make a spreadsheet program so much different than the original BCX program that it would be like comparing the original BCX with the more home-style Busy-Cal program. We'll also take a look at laser printers, calendar programs, and also how to make a very cheap cross-over cable for serial communications between computers, using only a 3-wire cable.

CHEAP CONNECTIONS

Although using David Miller's highly acclaimed MS-UTILITIES makes moving data to and from the MS-DOS world and the Model 4 easy, sometimes I need a more interactive approach, especially when I'm move a large number of file from a great number of subdirectories from the PC, and am making a number of on-the-spot decisions as I go. To accomplish this, I connect the 25-pin RS-232 port on the back of the Model 4 to a RS-232 port on the MS-machine and utilize communications programs on both to talk to each other. Since I do not have to worry about modems and such with this configuration, I have both ports set to 9600 baud and trade information back and forth at very high speed.

If you go down to the local "Shack" or any other computer-related equipment outlet and buy a serial interface cable, it might cost you up to \$40. In addition, you will need to purchase a small connector known as a "Null Model" so that the 'handshaking' between the computers is properly set up. Finally, if you have a 9-pin connector on the PC, you may have to purchase an adapter to convert 25-pin to 9-pin, or go the other way around and convert a 9-pin cable to 25-pin. The bill for this stuff adds up quickly.

However, I have constructed an inexpensive connector that does the same job as all this for under \$5. You can pick up inexpensive 25-pin plastic connectors that are designed for ribbon cables for anywhere from \$1 to \$2. In addition to this, I use an inexpensive standard 4-wire phone line cable, plus four 1" pieces of plastic-coated wire that I seem to

always have lurking around in my junk boxes in the basement. The trick to converting a \$50+ purchase into a quick \$5 project is to wire the connectors so that they act as an in-line null modem. If you use what is referred to as a "straight-through" cable, where the pins on the heads of each connector match pin-for-pin, the computers will never be able to communicate with each other because the transmit lines of bother computers are hooked together on the same line, as are the receive data lines. Thus they will not be able to transmit or receive data from each other because they try to talk on the same line, and try to listen on the same line.

A "true" null modem is a device that you would hook up to your RS-232 interface to fool it into thinking that it is connected to a serial device, such as a printer, modem, or whatever. Such a device is normally used to test your communications equipment. This is accomplished on a 25-pin connector by tying pins 2 and 3 together, 4 and 5 together, and 6, 8, and 20 together.

However, the term "null modem" has been applied in more recent times to a handshaking device that allows two serial devices to speak back and forth to each other. These are more commonly called "cross-over" connectors. A "true" cross-over cable, used so that two serial devices may communicate with each other, is by cross-connecting the wires between the two devices. That is to say that pin 2 connects to pin 3 on the other device, pin 3 to pin 2, pin 4 to pin 5, pin 5 to pin 4, pin 7 to pin 7, and the last tricky one: pin 6 & 8 to pin 20 on the other (both ways).

However, for two computers to talk to each other via their RS-232 devices is not so demanding. Indeed, as I stated earlier, this can be accomplished by interconnecting them with only a 3-wire cable. This little project is very easy, even for a novice, and having constructed so many, I can do the job in much less than a minute anymore (this is not to say that I will begin filling "orders" for any of you that request it; it is easy enough that you should have no problem doing it in a very short time on your own).

The trick to using a 3-wire cable is to combine the null-modem idea with the cross-over cable idea. Basically, we construct a null modem on each end, with the exceptions of the connections for pins 2, 3, and 7. In their case, pin 7 connects to pin 7 on the other connected, and pins 2 and 3 are swap connected on the other connected. Now refer to Figure 1 at the end of this column as you follow along:

Connecting a 25-pin connector to another 25-pin connector is easiest. You first make four 1" coated wires and press them (or solder them) to each connector as follows: connect one wire on each connector between pins 4 and 5. Connect another wire on each connector between pins 6, 8, and 20. Then using the 4-wire telephone cable, or whatever else you choose to use, select one wire to connect pin 7 on one connector to pin 7 on the other. Next, select another wire to connect pin 2 on one connector to pin 3 on the other. Finally, select the third wire and connect the free pin 3 on one connector to the free pin 2 on the other. Now batten down the hatches and you are ready to connect your computers.

If your MS-machine has a 9-pin connector which you use for your serial port, you can either purchase an inexpensive 25-to-9 pin adapter (which is what I had done before I discovered the pin layout for these small connectors in one of my hardware bibles), or you can use a 9-pin connector and wire it as follows:

On the 25-pin end, connect all wire as described above for one connector. On the 9-pin end, connect pins 7 and 8 with a 1" piece of wire (this corresponds with the signals on pins 4 and 5 of the 25-pin connector), and then connect pins 1, 4, and 6 with another 1" piece of wire (these correspond to the signals on pins 6, 8, and 20 on the 25-pin connector). Connect the wire that is connected to pin 7 on the 25-pin connector to pin 5 on the 9-pin connector (these are the signal ground pins). Finally, connect the wire to pin 2 on the 25-pin connector to pin 2 on the 9-pin connector, and connect pin 3 on the 25-pin connector to pin 3 on the 9-pin connector. Notice that in the case of 25-pin to 9-pin, pins 2 and 3 are already =internally= swapped, and so we simply connect them pin-for-pin. Refer to the table below figure 1 to see what signals are connected to each pin.

By the way, in case you looked inside your computer and are wondering why we did not worry about pins 9, 11, 18, and 25 of the 25-pin connectors, it is because these pins are not in use in modern communications, and are obsolete, existing only for the sake of relatively prehistoric communications devices that are no longer in use (so why bother continuing support?).

LASER CONNECTIONS

I have received a couple of "problem reports" from people who have complained that my plain-jane SuperSCRIPSIT and SCRIPSIT Pro printer drivers for the laser printers will not work with the proportionally spaced internal fonts contained within

their printers. Take for example the Okidata OL400e LED Page printer. This is one of the few "laser" printers that the manufacturers openly admit that they are LED rather than laser printers. Even my ALPS LPX600 printer is actually an LED printer. This technology is why the prices on "laser" printers are down so low, because the technology is just as good, but is a whole heck of a lot cheaper to manufacture.

Anyway, the "problem" the user is having in using the plain printer driver with this printer is that the many fonts available internally within the printer are not supported by the printer driver. The reason for this is because the printer driver was written not only to be as general as possible in order to support as many printers as possible, but also because the driver was written to support printer compatible with the LaserJet+ printer. The LaserJet+ (Laser Jet Plus) support only fixed pitch internal fonts; courier in particular, but also the line printer font when tight spacing is required. That's all. Newer printers include fonts that were previously available only with font cartridges (starting with the LaserJet II). For example, the OL400e printer described above is designed to be fully compatible with the LaserJet II printer, and (as an added incentive for consumers to buy their printer rather than someone else's) they included the fonts contained within the Hewlett-Packard Font Cartridges "B" and "F". Additionally, they have a USPS ZIP font that allows you to print out Postal bar codes and other symbols related to postal mailings.

Well, this additional stuff is not supported by the LaserJet+, and so support was not included in the driver. In order to take advantage of all the additional fonts in the printer, you would have to obtain a printer driver that was designed to support the selected fonts. What this requires is that a width table must be constructed using the assigned widths for the selected fonts. As it happens, CN80 has obtained the width tables for font cartridges "B", "F", "P", and "T" from Hewlett-Packard. If I'm not mistaken, until recently CN80 used a printer driver I wrote for SCRIPSIT Pro that used the Times Roman fonts contained in font cartridge "B" to print the CN80 magazine (they have since gone to soft fonts and drivers that are also available for purchase from them).

CALENDAR CONFUSION

I couple of queries sent me chasing my tail until I figured out that the questions were related to a problem with a common thing between them. It all start with a query about a problem with the Small C long-integer library. That was followed by a query

about a report of improper day of week reports in a day of week reporting program issued in the last Disk Series a while back. Henry Herrdegen of LaSalle, Ontario reported that the day of week was ill reported. For example, December 31, 1904 was a Saturday, but DAYWEEK reported Sunday. It likewise reported January 1, 1905 as (and correctly) Sunday. Oops. I decided that there was a programming error in the DAYWEEK/C program, and so set about tracking it down. It was easy enough to find. Instead of multiplying the current year by 365.2425 and then adding the day of year, I should have multiplied 365.2425 times the =previous= year. This would allow for the proper day of year offset to be computed in the total. Thus in the program where the longdate() function is called, I should have passed the variables "year-1" and "dayyr" to it, rather than "year" and "dayyr".

While I had the hood open on the program, I decided that instead of going through the complicated procedure of multiplying the provided year time 365.2425, I would instead multiply it times 365, and then add the integer result of the year divided by 4 plus the year divided by 400 minus the year divided by 100, plus the day of year. This obtains the same results, though much faster. It also eliminated the need to add a "+5" offset to the day of year to allow for the proper day of week to be reported. Thus the old line of "dayyr = day+5;" was changed to "dayyr = day;".

Even though I had corrected these problems, I still could not get the program to work right. Finally, tracing through the program in DEBUG, I discovered 2 bugs in the LONG/LIB long integer support library for the Small C language. The first error was found in the LABS/C module, which returns a pointer to the absolute value of another pointed value. Brain damage had caused me to totally screw up the code when I re-wrote it. This has been repaired. But then a second bug, a fatal one, was found in the longdiv() function. The first time through it runs ok, but the second time is would =always= crash (just freeze up or reboot -- no smoke, happily). I finally realized that for whatever non-reasoning that had possessed me at the time, I had used the strncpy() function to copy 4 bytes of code. Nice, but not only does it not work properly if a null byte is found in the middle of the string of bytes, but a final, additional null byte is written after the set number of bytes are copied. Thus 5 bytes are written. Unfortunately, this last byte over-writes some setup-code for the function, which is why it would not rerun. To solve this, I wrote a new function called ncpy() that simply copies the specified number of bytes; no more and no less. With this fixed, it works like a charm.

Those of you who have upgraded to the new version of Small C have already received an update disk that contains a new copy of the long integer library, plus new source code for the offending modules.

The new program listing DAYWEEK/C and its executable program, DAYWEEK/CMD, will appear on the next CN80 Disk Series disk.

See? Like I've always said, I =do= make mistakes. It is also a soul-soothing thing to admit to them. Now if I could only convince a few select individuals of that, I wouldn't go so buggy when they will absolutely refuse to admit to an error, though always able to at least convince themselves (if no one else) that someone else was responsible.

EASIER DAYWEEK FUNCTION

Now that I've gone through all of that, I have come up with an even easier way of computing the day of week using purely integer arithmetic. Program Listing One is an example. This program works like DAYWEEK/C, except that it is written in Model 4 BASIC so that more people can play around with the code and practice on their BASIC programming skills. It is short enough so that the new user should not feel too much apprehension about typing it in by entering BASIC from the command line, and typing the lines in as they are listed. Once typed in and verified, be sure to save it using the command SAVE "DAYWEEK/BAS". Notice that the integer division symbol "\" can be typed into BASIC by holding the CLEAR key down and pressing the "/" key.

This program will ask you for the year, the month number (1-12), and the day of the month. It will then report the day of the week. For example, if you selected 1994, the first month (January = 1), and the 9th day, the program will respond with:

Day of week for January 9 1994: Wednesday

Henry had also reported a problem with a calendar program on Disk Series Disk # 19. I checked it out and found that the program author's method of calculating the day of the week for the start of each month was not only in gross error, but was also unnecessarily complicated. As a sample of how to get around this, Program Listing Two will prompt you for the year to compute, and then it will display the day of the week that each month will begin on. An enterprising programmer may like to take this small program and expand it into a full-blown calendar program. Good luck.

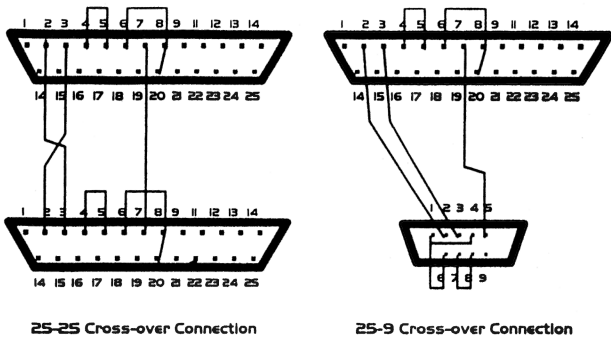
BCX UPDATE

So far there has been a fair amount of interest in

my mentioning requested enhancements that people have made in regard to my BCX spreadsheet program. As I had stated at the opening of this column, I have already incorporated all those enhancements in one or another privately updated copies of BCX which I keep safely locked away. Indeed, the feature list that I have developed goes far beyond what was mentioned. For example, the date and time functions are quite powerful and extensive. For example, under one version of BCX I can display a spreadsheet that simply displays a monthly calendar for the current month. By utilizing additional functions, such as @COPY() and @FORMAT(), I can copy values and text around the spreadsheet, as well as format certain ones to be centered, invisible, or whatever. I have accomplished variable width column support with results that are far better and faster than what I had expected. The screen updates are fast and furious. One feature that has slowed the execution of some functions is in the support of high memory functions. In order to allow this, I placed the reference table for cells in an extended memory bank, and required the program to switch bank 0 in and out as required to process functions. A good side-effect of this was that I suddenly had plenty of room for additional program space, and thus new functions. It also gave me plenty of room to add not just 3 user-defined keys, but a total of 26 (A-Z). I enhanced the spreadsheet format so that when a spreadsheet is saved to disk, the user-defined key data (what I call macros) are saved right along with it. Thus when you load a spreadsheet that is set up to use macros, they will be loaded right along with the spreadsheet so that you no longer have to load them separately. Of course, you can still save and load them separately if you desire, so that support for them can extend to other spreadsheets.

If you have an interest in my pursuing the task of combining all these experimental versions of BCX into a single, powerful program, please contact CN80 and let them know. I will not bother with such a project if only one or two or just a few people express interest. This is a major undertaking and would result in the most powerful spreadsheet program that ever graced a Model 4. I'm going to have a lot of free time soon that I could devote to such a project, but I will not wait too long.

Well, I've managed to blab my way through another column. So until next time, Happy Computing!
 -David Goben



25-PIN CONNECTOR:		9-PIN COONECTOR:	
Pin	Function	Pin	Function
2	Transmit Data	1	Carrier Detect
3	Receive Data	2	Receive Data
4	Request to Send	3	Transmit Data
5	Clear to Send	4	Data Terminal Ready
6	Data Set Ready	5	Signal Ground
7	Signal Ground	6	Data Set Ready
8	Carrier Detect	7	Request to Send
20	Data Terminal Ready	8	Clear to Send
22	Ring Indicator	9	Ring Indicator

Fig. 1

(If you don't feel like building a null modem cable from scratch as the above diagram shows. CN-80 has 6 ft. null-modem cables already constructed in a round molded cable for \$9.95.)

DESKMATE & THE TT512P MODEM

by John Hemminger

For those Model 4 users who have DeskMate, the following article describes how to use DeskMate with a modem which uses the "AT" commands.

Last summer, I had a need for a simple Host program to receive ASCII data files from a friend who has an MS-DOS machine. I wanted to be able to leave my Model 4P unattended and at the same time be able to keep the file transfer process as simple as possible. As DeskMate has a Host program, I decided that I would use it. From what I have read, DeskMate was originally written for the Model 4P computer and 4P internal modem which was only capable of 300 baud operation. I am aware of only one DeskMate Model 4 version, that being version 01.00.00.

The Teletrends TT512P modem is capable of 300 or 1200 baud operation and mounts internally in the 4P. The DeskMate modem definitions must be changed to accommodate the TT512P "AT" command set, see Computer Dialing and Answer

Mode definitions. In addition, when the TT512P modem is initially turned on, it goes to the "Auto Answer" mode and will go online at the first ring. If you leave the modem connected to the phone line all the time and you use the phone line for voice and modem communications a problem is encountered as the modem will answer before you can get to the phone. The first solution is to unplug the phone line from the modem when the modem is not being used (a very good idea for those of us who live in areas where thunderstorms are a problem, as lightning is a problem even on buried phone lines). The second solution is to disable the auto-answer function after the computer is booted. The SET512V2/CMD (available from CN80, FILE CABINET, disk number M4COM04) will disable the auto-answer function from the DOS level. Another solution would involve creating a DeskMate Autolog file, see OFFLINE/LOG.

The next problem concerns the TT512P and the result codes that are sent to the video after the modem is given a command. When using the DeskMate Host function, these result codes will cause problems when the Host function answers an incoming call. To circumvent this problem, create an Autolog file to disable the result code function, see SET4HOST/LOG. This Autolog file will be used instead of the Answer Mode Definition which is left blank.

If you use DeskMate Telcom or Host functions at 300 or 1200 baud, the DTR (Data Terminal Ready) and RTS (Ready To Send) lines are turned "off" when you exit the respective function and this causes a relay in the TT512P to "chatter". If you listen carefully you can hear it and it is annoying and undoubtedly not good for the modem. I developed two patches which leave the DTR and RTS lines "on" after exiting the Host or Telcom functions, see DMHOST/FIX and DMTELCOM/FIX. (Remember there are no "O's" just "zeros" in the lines that start with "D"). Apply the patches to the DMHOST/CMD and DMTELCOM/CMD files and then enter Deskmate Telcom. If you are going to use 1200 baud, check the Telcom Status screen and set the baud rate to 1200. Exit Telcom and then exit DeskMate using the <F3> key (do not use <SHIFT><F3>) to save the new configuration in the DMRES1/CMD file. The next time you enter DeskMate, your modem will be set at 1200 baud and the DTR and RTS lines will be "on" and the modem will not be "chattering".

The last patch line of DMHOST/FIX, is a cosmetic patch involving the DMHOST/CMD and the Remote User screen when transferring files, see the

DeskMate Sample Session manual - Page 90. The DMHOST/CMD will send a message to the Remote User screen "FILE READY FOR TRANSFER". Actually, the HOST terminal is ready for the transfer, the Remote User might not be ready. This patch changes the message to read "HOST READY FOR TRANSFER".

When using the Host function, enter DeskMate and execute the SET4HOST/LOG, exit Telcom and then enter the Host function. Keep in mind, that DeskMate does not support "XMODEM" file transfer. Any files that are sent or received must be in ASCII format or the system will most likely lock up. Secondly, DeskMate appears to be somewhat "slow" when receiving a file as it will drop characters when writing to a floppy drive. The solution to this problem is to route incoming files to a "MEMDISK" or "RAMDISK". Use the DeskMate SWAP function on the Main Menu to make the memdisk the DeskMate data disk. A hard drive subdisk may also be used.

If you have access to a second computer and modem, you might want to try the modified DeskMate programs and see how they operate. All you have to do, is connect the two modems using a modular to modular line cord. To test the Deskmate Host function, enter DeskMate and create an Answer Mode Definition of: "SEND: ATA^M". Execute the SET4HOST Autolog then enter the Host function, this will place the Host terminal online. Go to the remote terminal and from the terminal mode enter "ATO<ENTER>" (modem on-line, originate mode) and the remote terminal will then be placed online. After the modems have established a connection, from the remote terminal, press <ENTER> and you should see the Deskmate Remote menu. If you disconnect from the Host terminal and want to start again, exit the Host function and then reenter Host to put it online again. When you are done testing, remove the Answer Mode Definition.

I believe that this information should be applicable to any modem that uses the "AT" commands. If you can use two computers with modems side by side, it is much easier to see how things work and correct any bugs that might appear. The one second pauses in the Computer Dialing definition and Autolog files are necessary as DeskMate evidently sends commands to the modem faster than the modem can process them, without the pauses, one or more of the commands can be ignored by the modem.

-John Hemminger

DESKMATE DEFINITIONS & PATCHES
by John Hemminger

COMPUTER DIALING DEFINITION:

Send: ATZ^M(RESET MODEM TO DEFAULT SETTINGS)

Pause: 1

Send: ATTD(TONE DIAL)

Send Phone Number to Modem

Send: ^M(<ENTER>, DIAL PHONE NUMBER)

ANSWER MODE DEFINITION:

LEAVE BLANK(UNDEFINED FOR NORMAL OPERATION)

Send: ATA^M(FOR TESTING ONLY)

OFFLINE/LOG:

Status: 12,8,N,1,Y,N,N,N,0

Pause: 1

Send: ATZ^M(RESET MODEM)

Pause: 1

Send: ATSO=000^M(AUTO ANSWER OFF)

Pause: 1

Send: MODEM WILL NOT ANSWER
INCOMING CALLS

Send: ^M

SET4HOST/LOG:

Status: 12,8,N,1,Y,N,N,N,0

Pause: 1

Send: ATZ^M(RESET MODEM)

Pause: 1

Send: ATQ1^M(DO NOT SEND RESULT
CODES)

Pause: 1

Send: ATSO=004^M(ANSWER ON 4TH RING)

Pause: 1

DMHOST/FIX

.FILESPEC: DMHOST/FIX

.PATCH DMHOST/CMD (DTR & RTS "ON" AT
EXIT)

D00,DE=3E 01;F00,DE=3E 00

.PATCH DMHOST/CMD (CHANGE PROMPT
FROM "FILE" TO "HOST")

D0A,E0=48 4F 53 54;F0A,E0=46 49 4C 45

.END OF PATCH

DMTELCOM/FIX

.FILESPEC: DMTELCOM/FIX

.PATCH DMTELCOM/CMD (DTR & RTS "ON"
AT EXIT)

D01,B1=E6 FC;F01,B1=F6 03

.END OF PATCH

INVEST/BAS PROGRAM

by Jack E. Willson

Always read and understand the prospectus of a security to be purchased, then consult with your financial advisor or accountant before making an investment.

This program "INVEST/BAS" (program listing number five) was developed for the person who is interested in comparing investment opportunities in the purchase of bonds and other securities such as Treasury Notes, Corporate Bonds, Municipal Boncx, etc. based on Cost, Face Value, Term, and Interest Rate.

When two or more securities (municipal bonds, T bills, T notes, Corporate bonds) are available for purchase it is desirable to determine, among other things which of these gives the greatest Total Yield over the full term. This program will compare two securities based on Face Value (FV), Term in Years (TY), Cost (C), Payment Rate (Interest) (R) and Capital Gain or Loss (CG).

Terms of most securities are for full year periods. Two of the exceptions are 3 month and 6 month Treasury Bills. Cost is not necessarily the face value of the security. One may sometimes have to pay a premium over the face value or some may be available at a discounted price. This will determine Capital Gain or Capital Loss if held to maturity.

Interest is generally paid semiannually. Some municipal bonds may pay interest by coupon (coupon interest is semiannual interest). This is generally when the bonds are not registered. Currently all bonds sold are registered.

Total Yield is the total amount of interest paid over the full term of the security.

In addition to interest return one may have a Capital Gain or Capital Loss when the security is held to maturity. A gain should be added to the Total Yield and a loss should be subtracted from the Total Yield to obtain the Total Return to be expected.

900-1005 are calculations of the various items as indicated. 2000-2140 is a screen printout of a comparison of the two securities. 4000-4130 is a hard copy printout of the comparison as above. 5000-5020 Is a routine requesting additional comparisons or to end the program.

Note: The author [or Computer News 80] assumes no liability for loss or damage caused directly or

indirectly by the use of this program. The information supplied should be used only as a guide and is not intended to be used alone in making a judgement in the purchase of securities. This information may be used when consulting your financial advisor or accountant.

-Jack E. Willson

OPEN FORUM

Q: A long time ago I bought a GRAYFYX Solution high resolution board from the original seller. I tried installing it as the Radio Shack High Resolution Board, but it did not work. I assume that the board I have is for non-gate but I am not sure. Is there any way that one can tell by the markings.

The board is marked GX 4.2, 1386 (C) 1984 Micro-Labs. Are non-gate/gate the same board.
-SR, Valley Center, CA

A: There are two types of high resolution boards from Micro-Labs, one is for the Gate-array Model 4, and one for the Non Gate array Model 4.

The Model 4 Gate array has the connector pins mounted in a vertical position in the top center of the mother board.

The Model 4 Non-Gate array has the connector mounted in a horizontal position in the lower left hand corner of the mother board.

This requires that the Micro-Lab board have different mounting positions for the socket connector depending on which computer you have. There is no other difference between the boards, except the quick-clip connector on the small wire mounted to the Micro-Labs board connects to a different location on the motherboard. Whereas when you install a Radio Shack board to your computer, either Gate array or non-gate array, there is no jumper wires to connect or any other things to do except remove the small black jumper block from the 34 pin male connector on the board that the high resolution boards plug onto.

If you have ever turned your computer on with the high resolution board removed, and the jumper block removed or missing from pin 16 and 18 of the row of pins that your high resolution board plugs into, then no damage is done. Except your screen will be in the reverse image mode.

That is the background will be lit and the letters

are dark, which is the reverse of what you normally see on the screen.

You can use a small cable with a male 34 pin connector on one end, and a female 34 pin connector on the other end to solve the problem of not having the Micro-Labs board to match your mother board type. Micro-Labs recommends that this cable be no longer than 4 inches. We can make you this cable for \$8 + \$4 (S&H) or you can make your own.

Board designations for the Micro-Labs Grayfyx Solution boards are:

GX5.1 for Gate Array Model 4/4D, also will fit any 4P. GX4.2 for Non-Gate Array Model 4. GX3 for Model III

LTR: Herewith a few assorted items:

1. Your December, 1993 article "Love at First Sight" about the 4P touched my heart. I bought a 4P in 1983 and took delivery in 1984. I bought it with 128K installed. Later I exchanged it for the gate-array model with the green screen and better arrow layout on the keyboard. The following appeal to me besides the features mentioned by Mr. Hendriks:

- a. The neatness of the enclosed case--no "staring eye" in my bedroom.
- b. Inside the closed case the computer is cleaner and safer to work around.
- c. The screen is higher-res.
- d. The computer is transportable for moving and for repairs.

2. Thanks for the new wave of attention to Scripsit-PRO. I bought mine in 1986 after reading the enthusiastic article in 80 Micro magazine rating it 4 stars. My only complaint is that it is not WYSIWYG. When printing in proportional type this is particularly troublesome, and I have to print column headings 3 or 4 times to get them properly positioned.

I did have one problem with Scripsit-PRO at first because my add-on 64K of memory, chip number MX-5244, was partially defective. My computer "guru" diagnosed the problem over the phone. He sent me an excellent program to test it: MEMTEST by Shane Dawalt [71076,511], and it worked beautifully. This program was designed for TRSDOS 6.x.x; I don't know if it would work without modifications with LS-DOS.

3. I follow this routine to clean my disk drives:

EVERY MONTH

I use a Radio Shack 26-295 cleaning diskette. Now that the original fluid is gone I use 99% isopropyl alcohol I buy in a drug store.

EVERY 6 MONTHS

- a. I remove the filter bag from my canister vacuum cleaner.
- b. I connect the hose to the "other" end of the canister to blow air, and I blow air till it comes clean.
- c. I connect the "radiator cleaner" attachment (the nozzle with the flat end) and blow out the disk drives.

Do you approve of these cleaning procedures? The Radio Shack catalog states that their "cleaning diskette...safely removes data-destroying oxide buildup." Oxide on the head? Please comment.

It's great to have you out there to correspond with and to consult.

-B. E. D., Philadelphia, PA

A: Scripsit Pro is a WYSIWYG (what you see is what you get) program. With the exception that any word processor program for the TRS-DOS computer have. The format layout that you see on the screen is exactly what you get, regardless of whether the print style is 12 pitch, 10 pitch, or proportional but the document on the screen will only show the line length and wrap around text for the selection of font pitch that you start out the document with.

For headers using different size fonts (selected by your print code set-up within the program) will not show on your screen. You should not have to print column headings several times, unless you have set your column headings to a different size font. For example the large size print that heads the articles in CN80 does not show as large size on the screen. And yet the program is still a WYSIWYG compared to the programs that you type everything out and have to embed printer control functions and then print out the text to see if your layout is the way you want it.

Send us a sample of your column headers and we would be better able to understand the problem you are having.

To answer your second question, yes the Memtest program will work with LS-DOS or TRSDOS. TRSDOS 1.3 (For the Model III or the Model 4 in the three mode) has a Memtest program that comes with the DOS disk.

To comment on your approach to cleaning your

drives what you are doing sounds fine. With one exception you should not continue to use the same cleaning disk after the solution is gone. Using the isopropyl alcohol is fine, but all the dirt cleaned from the magnetic read/write head is collected on the cleaning disk. After a period of time there can be a lot of grit, grime and oxide can build up on the disk. The disk cleaning kits usually have a space on the disk label to check off how many times it has been used. After 6 or 7 times, whatever the instructions indicate you should use a new cleaning kit that has a new cleaning disk.

This month we have featured a disk cleaning program (see program listing number 3) that moves the head across the disk cleaning disk, so that you are using the whole disk as the cleaning pad. Placing a cleaning disk in and letting it run a few seconds as the instructions tell you the head is touching the same spot on the cleaning disk and you can see this as just one dark streak in a circle on the disk cleaning surface. The program moves the head forward so that you are actually spreading the dirt cleaned off the read/write head over the full pad.

If you have single sided drives there is a small felt pressure pad that comes down on the top of the drive. Your drives actually store the magnetic data on the bottom of a disk when formatted as a single-sided disk. Again if you use the same disk cleaning disk over and over and it has collected a lot of grit and grime, you can wear this pad off as if were using coarse sandpaper.

While blowing out the drives may be good, it would be better to vacuum the air out into the vacuum cleaner. Then you are not blowing any dust and dirt into the computer. Be sure to vacuum your keyboard at the same time using a duster brush attachment, to keep it free of dust and cookie crumbs.

LTR: Your readers should know that Mark Reed means what he says about supplying customer support. I had a problem with his E4/CMD program (ED-IT for the Model 4) reading /JCL files saved in ASCII with LeScript. Mark found an incompatibility between E4 which works beautifully with LeScript files.

The problem I had with LeScript was the search mode too often corrupted the file by leaving an up arrow (ASCII 255) buried somewhere within it. I will use E4/CMD, obtained from you, for all future editing of my many /JCL files and LeScript for normal word processing.

-J. P. J. Fairmont, WV

DAYWEEK/BAS PROGRAM LISTING NUMBER ONE by David Goben

```
10 DEFSNG A:DEFINT B-Z
20 CLS
30 DIM MONTHS(12),MONTH$(12)
40 FOR X=1 TO 12:READ MONTH$(X),MONTHS(X):NEXT X
50 DATA January,31,February,28,March,31,April,30,May,31,June,30
60 DATA July,31,August,31,September,30,October,31,November,30,December,31
70 DIM DAYWK$(6)
80 FOR X=0 TO 6:READ DAYWK$(X):NEXT X
90 DATA Saturday,Sunday,Monday,Tuesday,Wednesday,Thursday,Friday
100 INPUT"Year";YEAR
110 IF YEAR<1582 THEN GOTO 100
120 INPUT"Month";MONTH
130 IF MONTH<1 OR MONTH>12 THEN GOTO 120
140 INPUT"Day";DAY
150 IF DAY<1 OR DAY>MONTHS(MONTH) THEN GOTO 140
160 X=1:DAYYR=DAY
170 WHILE X<> MONTH:DAYYR = DAYYR + MONTHS(X):X = X+1:WEND
180 ACCUM = YEAR
190 ACCUM = DAYYR + ACCUM\4 - ACCUM\100 + ACCUM\400 + ACCUM*365
200 ACCUM = ACCUM - INT(ACCUM/7)*7
210 PRINT:PRINT"Day of week for "MONTH$(MONTH);DAY;YEAR": "DAYWK$(ACCUM)
220 PRINT:GOTO 100
```

CAL/BAS PROGRAM LISTING NUMBER TWO by David Goben

```
10 CLS:CLEAR:DEFINT A-Z
20 DIM MO$(12),ML(12),DW$(6),DW(12)
30 FOR X=1 TO 12
40 READ MO$(X),ML(X)
50 NEXT X
60 DATA January,31,February,28,March,31
70 DATA April,30,May,31,June,30,July,31
80 DATA August,31,September,30,October,31
90 DATA November,30,December,31
100 FOR X=0 TO 6
110 READ DW$(X)
120 NEXT X
130 DATA Sunday,Monday,Tuesday,Wednesday
140 DATA Thursday,Friday,Saturday
150 INPUT"Enter Year to process";YR
160 IF YR<1901 THEN GOTO 150
170 IF(YR MOD 4)=0 AND (YR MOD 100)<>0 OR (YR MOD 400)=0 THEN ML(2)=29
180 YV=YR-1900
190 YV=(YV+3)\4+YV
200 FOR X=1 TO 12
210 DW(0)=DW(0)+ML(X-1)
220 DW(X)=(YV+DW(0)) MOD 7
230 NEXT X
240 FOR X=1 TO 12
250 PRINT MO$(X);YR"begins on a "DW$(DW(X))
260 NEXT X
```

DISCLEAN/BAS PROGRAM LISTING NUMBER THREE by Henry H. Herrdegen

A program to use in conjunction with a disk cleaning kit that has a special disk cleaning disk and cleaning fluid. Load the DISCLEAN/BAS program into BASIC. Answer the questions as they appear on the screen, then place the cleaning disk in the drive to be cleaned as instructed and press <Enter>. You should remove all disks from drives including the system/boot disk from drive zero. The program is loaded and saved in memory so that you do not have to have your system disk in drive zero until you want to exit BASIC and return to DOS ready.

```
1 'DISCLEAN/BAS: from MCN May 84 by Dewey Lusk. Changed for LS-DOS 6.3.1
  by H.H. Herrdegen. 93 07 25
10 CLS: DEFINT A-Z: DEFSTR K
11 PRINT @167, "***** M3 Driver Program for head cleaning Diskettes *****"
12 PRINT @327, "Remove Program Diskettes from all drives."
13 PRINT @407, CHR$(31) "Clean which Disk Drive ? 0, 1, 2 or 3: ";
14 GOSUB 33: IF K<"0" OR K>"3" THEN 14 ELSE A=VAL(K): PRINT @448, A: DR=2^A
15 PRINT @487,; INPUT "How many seconds to clean ? (0 to quit.): ", A
16 IF A=0 THEN 24 ELSE TM=INT(A/2.5)
17 PRINT @647, "Insert Cleaning Diskette and press any key to continue. ";
18 GOSUB 33: GOSUB 31
19 OUT 240,0: IF INP(240)>5 THEN 29' * Restore head to track 0 *
20 SR=INP(240): BU=SR AND 1: IF BU=1 THEN 20
21 TR=SR AND 4: IF TR<>4 THEN 29' * Test if head is at track 0 *
22 FOR I=1 TO TM' * Loop to cycle head (ca 2.5 sec) *
23 OUT 243,39: GOSUB 31: OUT 240,19: GOSUB 31: OUT 240,3: GOSUB 31: NEXT
24 PRINT @807, "Now:" * Ending Menu *
25 PRINT @887, "clean another drive, or to quit, insert a System Diskette,"
26 PRINT @970, "then <E>nd into BASIC," TAB(92) "or e<X>it to DOS: " TAB(97);
27 GOSUB 33: IF K="E" OR K="X" THEN CLS
28 IF K="O" THEN 13 ELSE IF K="E" THEN END ELSE IF K="X" THEN SYSTEM: ELSE 27
29 PRINT @647, CHR$(30)' * Track 0 fail Error Message *
30 PRINT @647, "Disk Drive malfunction or device not available!": GOTO 24
31 OUT 244,DR' * Subroutine to select Dr.and check Dr.Busy Flag *
32 SR=INP(240): BU=SR AND 1: IF BU=1 THEN 32 ELSE RETURN
33 K=INKEY$: IF K="" THEN 33
34 IF ASC(K)>96 AND ASC(K)<123 THEN K=CHR$(ASC(K)-32): RETURN ELSE RETURN
```

ZONE/BAS PROGRAM LISTING NUMBER FOUR by Robert Knowles

```
10 'SHIPPING RATES BY ZONE
20 'WRITTEN BY ROBERT KNOWLES DECEMBER 1993
30 CLS
40 INPUT"WHICH ZONE";Z
50 IF Z<1 OR Z>4 THEN END
60 ON Z GOSUB 70,140,200,260
70 PRINT "ZONE ONE"
80 INPUT"WEIGHT(IN POUNDS)";W
90 INPUT"MILES TO DESTINATION";MD
100 CP=.5 'COST PER POUND(MUST CHANGE WITH EACH ZONE)
110 CM=.12 'IS CONSTANT FOR ALL ZONES,NEED NOT CHANGE
120 TC=(W*CP)+(MD*CM)'TOTAL COST=(WEIGHT*COST per POUND)+(MILES *COST per MILE)
130 GOTO 320
140 PRINT "ZONE TWO"
```

Cont'd on next page.

```

150 INPUT"WEIGHT(IN POUNDS)";W
160 INPUT"MILES TO DESTINATION";MD
170 CP=1
180 TC=(W*CP)+(MD*CM) 'TOTAL COST=(WEIGHT*COST per POUND)+(MILES*COST per MILE)
190 GOTO 320
200 PRINT "ZONE THREE"
210 INPUT"WEIGHT(IN POUNDS)";W
220 INPUT"MILES TO DESTINATION";MD
230 CP=1.5
240 TC=(W*CP)+(MD*CM)'TOTAL COST=(WEIGHT*COST per POUND)+(MILES*COST per MILE)
250 GOTO 320
260 PRINT "ZONE FOUR"
270 INPUT"WEIGHT(IN POUNDS)";W
280 INPUT"MILES TO DESTINATION";MD
290 CP=2
300 TC=(W*CP)+(MD*CM)'TOTAL COST=(WEIGHT*COST per POUND)+(MILES*COST per MILE)
310 GOTO 320
320 U$="$$$###.##"
330 PRINT "ZONE" TAB(10)"COST/POUND"TAB(25)"WEIGHT(IN POUNDS)"TAB(55)".12/MILE"TAB(70)"TOTAL
COST"
340 PRINT Z TAB(9)USING U$;CP;:PRINT TAB(31) W TAB(55) MD"MILES" TAB(70)USING U$;TC
350 GOTO 40

```

ALGEBRA REVIEW by David K. Berg Continued

The screen menu of ALGEBRA/BAS on disk 10 shows the scope of the program:

-
- ```

 (TO TERMINATE, TYPE 'E')
 ==>1. FINDING COMMON FACTOR
 2. DIFFERENCE OF TWO SQUARES

 3. POLYNOMIAL -- AX + BX + C (A = 1)

 4. POLYNOMIAL -- AX + BX + C (A <> 1)
 5. GROUPING
 6. TWO CUBES
 7. POTPOURRI

```

WHICH OF THE ABOVE DO YOU WISH TO DO? -

---

A flashing arrow, ==>, appears by the number of your choice. You are then prompted as to whether you want to Study or Take-a-Quiz. If you choose "study," you are shown 5 screens, one at a time. You may take all the time you wish for each screen. If you choose "quiz," you are given 10 screens, one at a time, and you enter answers. If you answer incorrectly, you are given another chance. Both the "study" and "quiz" problems are constructed randomly by the program. Upon completion of either a "study" session or "quiz" session, you are returned to the program's menu.

Cont'd on next page.

This is an example of a "study" screen:

---

## 2. DIFFERENCE OF TWO SQUARES

THE DIFFERENCE OF TWO SQUARES IS  
FACTORED IN A SPECIAL WAY. ANY  
POLYNOMIAL OF THE FORM :

$$A^2 X^2 - B^2 Y^2$$

IS FACTORED AS:

$$(AX + BY)(AX - BY)$$

NOW LOOK AT A FEW EXAMPLES:

PRESS ENTER TO CONTINUE -

---

This is an example of a "quiz" screen. (The part in parentheses to the right of the screen is explanatory and does not really appear on the screen).

---

### PROBLEM # 1

$$49X^2 - 81$$

FACTORIZATION? -

(if you enter the wrong answer)  
THE CORRECT FACTORIZATION IS --

$$(7X + 9)(7X - 9)$$

PRESS ENTER TO CONTINUE -

---

ALGEBRA/BAS on disk 11, The longest of the algebra programs, is a complete overview program. It is actually a main program that starts a chain reaction in which 15 other related programs take turns loading and running and then "calling" the next program. It has 6 main lessons and a preview or introduction for each. For example, when lesson one is finished, it calls a preview program for lesson two. The preview programs calls up lesson two from disk, and so on.

This collection of programs covers the whole general picture of basic algebra in its 6 lessons. There are a few typo's in the text, but they are minor and do not detract from the good quality of the program.

### ADDING A MENU TO ALGEBRA/BAS ON DISK 11

Perhaps a disadvantage of this program and its fifteen satellites is that it starts from the beginning and goes straight through to the end in chronological order. Someone using the program may not finish in one sitting and may wish to continue later where he/she left off. But loading and running the program later causes the program to start from the beginning again.



For that reason I wrote a small menu program. This "MENU6/BAS" program (the 6 is for 6 lessons) allows a person to "skip around" in the program, to start in the middle or anywhere else. This is done by adding a line to the main program and a line to each of six satellite programs. (As a good programming practice, I suggest you do this to a backup working program, not the original). The added line allows the viewer to go on to the next lesson in logical order, or to go to a menu and "skip around." This menu program was not hard to do. Any Basic programmer could have done it. But I thought it might be a time-saver and convenience to those using this program. See the Program Listings for a listing of this menu program and the lines to add to the necessary satellite programs. MENU6/BAS can be added to the working copy of your disk. The modified versions of the main program and six satellite programs should then be re-saved to the same disk.

Model 1/3 File Cabinet disks are single-sided, single-density, 35 track disks. The original disk 11 is a full disk. In order to have room on your working copy backup disk for the extra menu program, you should either format it in double-density (35 or 40 tracks) or single-density, 40 tracks.

A "screen dump" of the MENU6/BAS program will show what the ALGEBRA/BAS programs on disk 11 cover. (The original program does not use a menu).

---

ALGEBRA/BAS (ON FILE CABINET DISK M3EDU11)

LESSON 1 -- DEFINITIONS OF VARIABLES, CONSTANTS, TERMS /  
THE USE OF PARENTHESES  
LESSON 2 -- EQUATIONS AND HOW TO SOLVE THEM / RULES FOR  
SOLVING EQUATIONS / STEPS FOR PROBLEM  
SOLVING  
LESSON 3 -- REAL NUMBERS, + AND - / ABSOLUTE VALUES /  
+ AND - NUMBERS ON A NUMBER LINE  
LESSON 4 -- REPEATED MULTIPLICATION OF FACTORS / POWERS  
OF SIGNED NUMBERS / MULTIPLYING NUMBERS OF  
THE SAME BASE / NEGATIVE EXPONENTS /  
DIVISION OF POWERS  
LESSON 5 -- HOW TO SOLVE A SYSTEM OF EQUATIONS /  
INTRODUCTION TO FORMULAS / EXERCISES  
LESSON 6 -- FACTORS / FACTORS OF EXPRESSIONS, MORE THAN  
ONE TERM / FACTORING AND SOLVING QUADRATIC  
EQUATIONS

WHICH LESSON TO YOU WANT TO STUDY? -

---

This is an example of a main program screen:

---

THESE ALGEBRA I PROGRAMS MAY BE USED BY TEACHERS AND  
STUDENTS AS A SUPPLEMENT TO AN EXISTING COURSE OF  
INSTRUCTION, OR THEY MAY BE USED BY OTHER GROUPS SEEKING  
TO REFRESH THEIR KNOWLEDGE OF ALGEBRA. THE PROGRAMS CAN  
BE USED IN BUSINESS ENVIRONMENTS TO HELP EMPLOYEES  
ADVANCE AND BECOME MORE PRODUCTIVE AND USEFUL TO THE  
COMPANY. THEY WILL ALSO BENEFIT THE INDIVIDUAL WHO IS  
SEEKING TO LEARN ALGEBRA THROUGH SELF-INSTRUCTION AT A  
LEISURELY PACE. ALGEBRA I IS DESIGNED TO PROVIDE THE  
FUNDAMENTAL BASICS OF ALGEBRA AND TO MAKE LEARNING IT  
ENJOYABLE.

PRESS ENTER TO CONTINUE -

---

This is an example of a PREVIEW screen:

---

PREVIEW OF ALGEBRA LESSON 1

LESSON 1 ADDRESSES DEFINITIONS OF VARIABLES, CONSTANTS, TERMS, AND USE OF PARENTHESES. FOR A QUICK LOOK, BEFORE CHECKING OUT THE PROGRAM, YOU MAY WANT TO REVIEW THE FOLLOWING:

-- A VARIABLE IS A LETTER OR SYMBOL THAT REPRESENTS ANY NUMBER IN A SPECIFIED SET OF NUMBERS. FOR INSTANCE, YOU MAY ASSIGN X AS THE VARIABLE TO REPRESENT ANY NUMBER BETWEEN 1 AND 99.

-- A CONSTANT IS A LETTER OR SYMBOL THAT REPRESENTS ONLY ONE NUMBER. THEREFORE, IF A VARIABLE, Y, CAN HAVE ONLY ONE VALUE, IT IS TREATED AS A CONSTANT.

PRESS ENTER TO CONTINUE -

---

This is an example of a LESSON screen:

---

AN EXPRESSION CONSISTS OF ONE OR MORE TERMS CONNECTED BY PLUS OR MINUS SIGNS. THUS  $YZ$ ,  $2X-Y/3$  ARE EXPRESSIONS.

PARENTHESES ARE USED TO TREAT AN EXPRESSION AS A SINGLE NUMBER. THUS  $2(X+Y)$  MEANS TWICE THE SUM OF X AND Y.

EXERCISE

TYPE IN THE NUMBER OF TERMS IN THE EXPRESSIONS:

$2Z-Y/X+3$ ANS ? -

$X-2Y/3Z(X+Y)$ ANS

---

Disk 22 has ALGEBRA1/BAS and ALGEBRA2/BAS, both by the same author, Wm. Scott Watson. (The names of the authors on the other disks, I could not find). Both of these are short practice programs in which you enter the value for "x" in an algebraic equation. The problems are randomly constructed by the programs. In both programs, you choose the number of questions you want.

This is an example screen from ALGEBRA1/BAS:

---

HOW MANY QUESTIONS? -

QUESTION #1

$4(X-7) = 4$

WHAT IS X? = -

---

This is a sample screen from ALGEBRA2/BAS. (The parts in parentheses to the right of the screen are explanatory additions and do not really appear on the screen).

-----  
QUESTION #1  
EQUATION --

X SQUARED + 3X - 4

WHAT ARE THE ROOTS?

X ? ----(Put plus or minus a number.)

AND X ? ----(Put plus or minus a number.)

(Correct answer would be  
(x - 1) (x + 4)  
-----

-----  
In conclusion, there is a wealth of information on these three disks that have the necessary information and practice that could make anyone good in algebra. The programs are well done, very understandable, and you can study or practice at your own pace. My own experience in algebra was in the late 50's in high school and in a college calculus course in the early 60's. Looking over this material, I find it challenging. I either have forgotten a lot or did not know it in the first place. And yet, the opportunity exists, via these computer programs, to access this information in unhurried, simplified steps.

#### MENU6/BAS

```
10 REM * PROGRAM TO ALLOW CHOICES AS TO WHICH PART OF ALGEBRA/BAS TO STUDY * THIS
 PROGRAM NOT PART OF ORIGINAL M3EDU11 DISK * ADDED 4-15-90 * MENU6/BAS * BY D. BERG
20 REM * ORIGINAL PROGRAM ON FILE CABINET DISK M3EDU11 WENT IN A
 STRAIGHT-THROUGH PROGRESSION, LESSONS 1 - 6
30 CLS:PRINT"ALGEBRA/BAS (ON FILE CABINET DISK M3EDU11)":PRINT: FOR DELAY=1TO500:NEXT
 DELAY
40 PRINT"LESSON 1 -- DEFINITIONS OF VARIABLES, CONSTANTS, TERMS /":PRINTTAB(13)"THE USE
 OF PARENTHESES"
50 PRINT"LESSON 2 -- EQUATIONS & HOW TO SOLVE THEM / RULES FOR":PRINTTAB(13)"SOLVING
 EQUATIONS / STEPS FOR PROBLEM SOLVING"
60 PRINT"LESSON 3 -- REAL NUMBERS, + AND - / ABSOLUTE VALUES /":PRINTTAB(13)" + AND -
 NUMBERS ON A NUMBER LINE"
70 PRINT"LESSON 4 -- REPEATED MULTIPLICATION OF FACTORS / POWERS
 OF":PRINTTAB(13)"SIGNED NUMBERS / MULTIPLYING NUMBERS OF THE
 SAME":PRINTTAB(13)"BASE / NEGATIVE EXPONENTS / DIVISION OF POWERS"
80 PRINT"LESSON 5 -- HOW TO SOLVE A SYSTEM OF EQUATIONS /":
 PRINTTAB(13)"INTRODUCTION TO FORMULAS / EXERCISES"
90 PRINT"LESSON 6 -- FACTORS / FACTORS OF EXPRESSIONS, MORE THAN
 ONE":PRINTTAB(13)"TERM / FACTORING AND SOLVING QUADRATIC EQUATIONS":PRINT
100 INPUT"WHICH LESSON DO YOU WANT TO STUDY";LSN:IF LSN<1 OR LSN>6THEN30
110 LSN$=STR$(LSN):NUM$=RIGHT$(LSN$,1):FILE$="PREVIEW"+NUM$+ "/BAS"
120 PRINT"LOADING ";FILE$
130 RUN FILE$
```

Cont'd on next page.

Add this line to ALGEBRA/BAS on M3EDU11

```
135 PRINT"LOAD LESSON 1 OR SEE MENU OF ALL LESSONS?":PRINT "<EN>=LESSON 1,
<M>=MENU";INPUT QUERY$:IFQUERY$="M" ORQUERY$="m"THENRUN"MENU6/BAS"THIS LINE ADDED
TO ORIGINAL PROGRAM
```

Add this line to LESSON1/BAS on M3EDU11

```
575 PRINT:PRINT"LOAD LESSON 2 OR SEE MENU OF ALL LESSONS?":PRINT "<EN>=LESSON 2,
<M>=MENU";INPUT QUERY$:IF QUERY$="M"OR QUERY$="m"THENRUN"MENU6/BAS"THIS LINE ADDED
TO ORIGINAL PROGRAM
```

Add this line to LESSON2E/BAS on M3EDU11

```
355 PRINT:"LOAD LESSON 3 OR SEE MENU OF ALL LESSONS?":PRINT "<EN>=LESSON 3,
<M>=MENU";INPUTQUERY$:IFQUERY$="M"OR QUERY$="m"THENRUN"MENU6/BAS"THIS LINE ADDED TO
ORIGINAL PROGRAM
```

Add this line to LESSON3E/BAS on M3EDU11

```
585 PRINT"LOAD LESSON 4 OR SEE MENU OF ALL LESSONS?":PRINT "<EN>=LESSON 4,
<M>=MENU";INPUTQUERY$:IFQUERY$="M"OR QUERY$="m"THENRUN"MENU6/BAS"THIS LINE ADDED TO
ORIGINAL PROGRAM
```

Add this line to LESSON4/BAS on M3EDU11

```
577 PRINT"LOAD LESSON 5 OR SEE MENU OF ALL LESSONS?":PRINT "<EN>=LESSON 5,
<M>=MENU";INPUTQUERY$:IFQUERY$="M"OR QUERY$="m"THENRUN"MENU6/BAS"THIS LINE ADDED TO
ORIGINAL PROGRAM
```

Add this line to LESSON5E/BAS on M3EDU11

```
595 PRINT:PRINT"LOAD LESSON 6 OR SEE MENU OF ALL LESSONS?": PRINT"<EN>=LESSON 6,
<M>=MENU";INPUTQUERY$:IFQUERY$="M"OR QUERY$="m"THENRUN"MENU6/BAS"THIS LINE ADDED TO
ORIGINAL PROGRAM
```

Add this line to LESSON6/BAS on M3EDU11

```
479 PRINT:PRINT"STOP HERE OR SEE MENU OF ALL LESSONS?":PRINT "<EN>=STOP,
<M>=MENU";INPUTQUERY$:IFQUERY$="M"OR QUERY$="m" THENRUN"MENU6/BAS"THIS LINE ADDED
TO ORIGINAL PROGRAM
```

## BUG REPORT

I am covered with mortification. The model III program, LOANPAY/BAS, that I sent to you has several errors in it. I know that I corrected the errors, however I obviously neglected to save the corrected program. I also neglected to check the disk before I mailed it. Attached find the corrected program.

The following are the corrections:

Line 180, add a quote mark after the equal sign for F\$.

Line 240, at the end of the line delete "E250".

Line 290, change OR to AND between AA\$<>"Y" and AA\$<>"y".

Line 380, change TAB(37) to TAB(46).

Line 580, change OR to AND.

I regret the inconvenience these errors may have caused.

-Merlin P. Walters

*(To error is to be human, as they say, and we are all human, so we all make mistakes. The corrected file will be available on Disk Series Number 24.) -CN80*

```

0 PRINT" VOYEUR T 1.0 by James Main Kenney 1993":PRINT" Free distribution for exact
copies":PRINT:MAXFILES=1:CLEAR255:DEFINTB-U:U=128:T=256:Z=T^2:E$=CHR$(27):M=280:X=63860:
GOTO80
1 IFA+2>ZTHENA=A-Z:GOTO1ELSEA=A+1:B=PEEK(A):PRINT@P,E$p";:IFB<32THENC=B+64ELSEIFB=127TH
ENC=126ELSEC=B:PRINTE$q";
2 C$=CHR$(C):PRINTC$;:IFDTHENT$=RIGHT$(T$+CHR$(B),D):IFINSTR(S$,T$)THENIFLEN(T$)=DTHENBEEP:
K=2
3 IFKORINKEY$>" "THEN5
4 IFP+1<MTHENP=P+1:GOTO1ELSEIFETHENPRINTE$"W"E$q"E$L":PRINTUSING"> ####";A:P=M-40:
GOTO1
5 R=BMODU:IFR<32ORR=127THENR=326 PRINT@M+12,E$"V"C$;E$q ":PRINTCHR$(R);USING" ####
###";A;B:PRINT@M+14,,:IFHORK=0THENX=B:FORR=0TO1:H$="H":FORJ=1+2*RTO0STEP-1:S=X/16^J:H$=H
$+C HR$(48+S+7*(S\10)):X=X-S*16^J:NEXT:PRINTE$ " ";X=A:NEXT
7 IFN=0THEN20ELSEIFQTHENQ=Q-1:GOTO21ELSEIFB<UANDA+4<ZTHENIFB=0THENC$=STR$(PEEK(A+3)
+T*PEEK(A+4)):C$=RIGHT$(C$,LEN(C$)-1):Q=4ELSEIFB<>58THEN9ELSEIFPEEK(A+1)=145THEN21ELSEIFPEE
K(A +1)=142ANDPEEK(A+2)=255THENQ=1:GOTO21
8 IFB>=UTHENR=4*(B-U)+60+ASC(MID$("DCBBBCBBAA@>ABDCCDDDDDEGFDEEFFGHHJLKKLLLMNOPQRR
QPONNOPPRSRSSRRRTSSQRTSRUVWY[Z[[ZZWTQNKJHGFEDA>;8765433210/./, +**)'""&%$#%&((",B-127
,1)) :C$=CHR$(PEEK(R)-U):FORJ=R+1TOR+6:S=PEEK(J):IFS<UTHENC$=C$+CHR$(S):NEXT
9 PRINTC$;
20 IFFTHENIFNTHENIFB=0THENPRINT#1,CHR$(13);CHR$(10);C$"";ELSEPRINT#1,C$;ELSEIFB=0ORB=26ORB=
127 THENPRINT#1,"^C$;ELSEPRINT#1,CHR$(B);
21 PRINTE$"K":X=PEEK(A-1)+T*B:PRINT@M+32,X:IFFTHENPRINT@M+39,"F
22 IFK=1ANDINKEY$=" "THEN4ELSEPRINT@P,,:E=0:K$=INPUT$(1):J=INSTR("aSfbLeHNcGdz",CHR$(ASC(K$)
+70)); IFJ=1THENMENUELSEIFJ=2ORJ>4THENQ=0:F=0:CLOSE:IFJ=2THENK=0:PRINT@M,">":PRINT@M+8,
E$"K":IFP+1< MTHEN4ELSEE=1:GOTO4
30 IFJTHENS=(P+VAL(MID$("001001011040120",3*((J-3)MOD5)+1,3))*(1-2*(J\8))+M)MODM:A=A+S-P:P=S:K=2:
GOTO32ELSEK=INSTR("RASPNIHBFCDT=raspnlhbfcdt",K$)MOD13:PRINT@M+14,,:IFK<2THENE=1:GOTO22
ELSEPRINTE$"K":PRINT@M+14,,:Q=0:S=1:ONK-1GOSUB50,60,70
31 IFK=5THENA=A+MELSEIFK=6THENA=A-MELSEIFK=7THENH=HXOR1ELSEIFK=8THENN=NXOR1ELS
EIFK=9T HENF=FXOR1:IFFTHENF$="A"+RIGHT$(STR$(A),5): PRINT"File"F$;:INPUTF$:OPENF$FOROUTPUTAS1
ELSECLOSEELSEIFK>9THENP=0:CLS:IFK=11THENA=63858:IFM=600TH ENA=62049
32 IFK>10THENK=0:F=0:CLOSEELSEA=A-1:IFA<0THENA=A+Z
33 GOTO1
40 Y=VAL(A$):IFYTHENG=1ELSEG=LEN(A$):S=ASC(A$):IFG=1ANDS<>48THENY=SELEIFS=72ORS=104
THENFORJ=0TOG-2:S=INSTR("FEDCBA9876543210=fedcba",MID$(A$,G-J,1))MOD17:IFSTHENY=Y+(16-S)*16^J:
NEXT : G=1
41 RETURN
50 A$=STR$(X-1):PRINT"Address"A$;:INPUTA$:GOSUB40:IFG>1THENBEEPELSEX=A:A=Y:X=P+A-X:IFX>=
0ANDX< MTHENP=X
51 RETURN
60 PRINT@M,,:IFSTHENPRINT" Search":PRINT@M+13,;ELSEPRINTE$L"D"byte search";
61 LINEINPUT"? ";A$:IFA$=" "THENIFSTHENA$=CHR$(B):Y=B:G=1ELSERETURNELSEGOSUB40:IFG=1
THENIFY<TTHENA$=CHR $(Y)ELSEIFY=999THENS$="":A$="
62 S$=S$+A$:D=LEN(A$):S=0:GOTO60
70 PRINT"Poke"STR$(Y)"? ";:LINEINPUTA$:IFA$>" "THENGOSUB40
71 IFG<2ANDY<TTHENPOKEA,Y:RETURNELSEBEEP:RETURN
80 PRINT"Any key stops scan; then, for character at cursor, read: 7-bit ASCII equivalent;decimal address &
byte; character; opt. hex byte & address; opt. decoded BASIC; 16-bit binary value. (1)00 or (2)00?
";:R=VAL(INPUT$(1)):CLS:PRINT
81 PRINT"With scan stopped: spacebar, BKSP, arrow& SHIFT-arrow keys step cursor; R runs; H toggles
hex values; C clears screen; B toggles BASIC decode; D for directory;N & L jump address; ESC for
MENU.":IFR=2ORPEEK(1)=171ANDR<>1THENM=600:X=62051
82 PRINT:GOSUB50:CLS:PRINT:PRINT"ENTER scans; with cursor at display end:ENTER scrolls; T pages.
Prompts (prefixhex # by H): (A)ddress; (F)ile; (P)oke; (S)earch: enter bytes or equal-length strings; 999
clears search list.":GOSUB60:CLS:GOTO32

```

```

0 SCREEN0,0:PRINT" VOYEUR N 1.0 by James Main Kenney 1993":PRINT" Free distribution for exact
copies":PRINT:MAXFILES=1:CLEAR255:DEFINTB-W:U=128:T=256:Z=T^2:E$=CHR$(27):M=280:X=63585!:
GOTO 80
1 IFA+2>ZTHEN A=A-Z:GOTO1ELSE A=A+1:B=PEEK(A):LOCATEP,L:PRINT E$"p";:IFB<32THENC=B+64ELSEIF
BM ODU=127THENC=126ELSEIFB>159THENC=B-UELSEIFB>130THENC=B-96ELSE C=B:PRINT E$"q";
2 C$=CHR$(C):PRINT C$;:W=POS(0):V=CSRLIN:IFDTHENT$=RIGHT$(T$+CHR$(B),D):IFINSTR(S$,T$)THENIF
LEN(T$)=DTHENBEEP:K=2
3 IFKORINKEY$>" "THEN5
4 IFV<7THENP=W:L=V:GOTO1ELSEIFETHENPRINT E$"W"E$"q"E$"L":PRINT USING"> #####"A;:P=0:L=6:
GOTO1
5 R=BMODU:IFR<32ORR=127THENR=32
6 LOCATE12,7:PRINT E$"V"C$;E$"q ":PRINT CHR$(R);USING" #####"
";A;B:LOCATE14,7:IFHORK=0THENX=B:FORR=0TO1:H$="H":FORJ=1+2*RT00STEP-1:S=X/16^J:H$=H$+CHR$
(48+S+7*(S\10)):X=X-S*16^J:NEXT:PRINT H$":X=A:NEXT
7 IFN=0THEN20ELSEIFQTHENQ=Q-1:GOTO21ELSEIFB>31ANDB<>58ANDB<UTHEN14ELSEIFA+8<Z
THENFORJ=1TO8:A(J)=PEEK(A+J):NEXT:S=A(1):IFB>UTHEN9ELSEIFB=31THENDEFDBLXELSEIFB=58THENIF
S=161THEN 21ELSEIFS=143ANDA(2)=228THENQ=1:GOTO21
8 IFB=0THENX=A(3)+T*A(4):Q=4ELSEIFB>16ANDB<27THENX=B-17ELSEIFB=15THENX=S:Q=1ELSEIFB=
29ORB=31THENC=2*(B-27):X=1/2:FORJ=1TOC-1:X=X+A(J)*T^(J-C):NEXT:X=X*2^(A(C)-U):Q=CELEX=-1:IFB
=13O RB=14ORB=28THENX=S+T*A(2):Q=2:IFB=13THENX=PEEK(X+3)+T*PEEK(X+4)
9 IFB=255ANDS>UANDS<170THENC=S-U:Q=1ELSEIFB>UTHENC=B-87ELSEIFX>=0THENC$=RIGHT$(S
TR$(X),LEN(STR$(X))-1):IFB=29ANDINSTR(C$,".")=0ANDINSTR(C$,"E")=0THENC$=C$+"!"ELSEIFB=31THENDEF
SNGX:I FINSTR(C$,"D")=0THENC$=C$+"#
10 IFB=<UTHEN14ELSER=ASC(MID$("DQFU=&UQUC7-Y&9=KDVZ'.LW##A###,-9###37DE48H;/NA:O<O;
NPSK*BHJ##K*+*!@##[4####5PG#R0011AML(8?).G/EW56R.M(2##I####)BF9H>##TC#?#YXXT###I66
VZ<]#+J3=Y3##S#]^^\\]]&J[7=F]#",C,1))
11 IFR<38THEN21ELSER=10*R+VAL(MID$("628105487717885393081021##2###5938###54019704889623361
33304782##5049917#25####665#117399065110420572776055##5####530047##31#5#1377###1144256#
9609 39##7#802468022487654",C,1)):C$="
12 FORJ=RTOR+6:S=PEEK(J):IFS<UTHENC$=C$+CHR$(S):NEXTELSEC$=C$+CHR$(S-U)
13 IFR>381ANDR<924THENC$=MID$("LRMSIASRSLECTAFIPLSVACPS##L####CCCF####DELLEFNDIDRLGRI
RGRSPCLNO##PCCCOLL#WE####ERM#RDDDDLPPBFKCCMCMSEESCPBBD##O####CLMFNK##SL#L
#TTT S####NEESUI##CODITD##S#####AOXEIM",C,1)+C$
14 PRINT C$;
20 IFFTHENIFNTHENIFB=0THENPRINT#1,CHR$(13);CHR$(10);C$";ELSEPRINT#1,C$;ELSEIFB=0ORB=26ORB=
127 ORB>130THENPRINT#1,"^"C$;ELSEPRINT#1,CHR$(B);
21 PRINT E$"K":IFB<>31THENX=PEEK(A-1)+T*B:LOCATE32,7:PRINTX:IFFTHENLOCATE39,7:PRINT"F
22 IFK=1ANDINKEY$=""THEN4ELSELOCATEP,L:E=0:K$=INPUT$(1):J=INSTR("aSfbLeHNcGdZ",CHR$(ASC(K$)
+70)):IFJ=1THENMENUELSEIFJ=2ORJ>4THENQ=0:F=0:CLOSE:IFJ=2THENK=0:LOCATE0,7:PRINT">":LOCATE
8,7:P RINTE$"K":IFV<7THEN4ELSEE=1:GOTO4
30 IFJTHENP=P+40*L:S=(P+VAL(MID$("001001011040120",3*((J-3)MOD5)+1,3)))*(1-2*(J\8))+M)MODM:A=A+
S-P:P=SMOD40:L=S\40:K=2:GOTO32ELSEK=INSTR("RASPNIHBFCDT=raspnlhbfcdt",K$)MOD13:LOCATE14,7:IF
K<2T HENE=1:GOTO22ELSEPRINT E$"K":LOCATE14,7:Q=0:S=1
31 ONK-1GOSUB50,60,70:IFK=5THENA=A+MELSEIFK=6THENA=A-MELSEIFK=7THENH=HXOR1ELSEIFK=8TH
ENN =NXOR1ELSEIFK=9THENF=FXOR1:IFFTHENF$="A"+RIGHT$(STR$(A),5):PRINT"File"F$;:INPUTF$:OP
ENF$FOROUTPUTAS1ELSECLOSEELSEIFK>9THENP=0:L=0:CLS:IFK=11THENA=63583!
32 IFK>10THENK=0:F=0:CLOSEELSEA=A-1:IFA<0THENA=A+Z
33 GOTO1
40 Y=VAL(A$):IFYTHENG=1ELSEG=LEN(A$):S=ASC(A$):IFG=1ANDS<>48THENY=SELSEIFS=72ORS=104T
HENFORJ=0TOG-2:S=INSTR("FEDCBA9876543210=fedcba",MID$(A$,G-J,1))MOD17:IFSTHENY=Y+(16-S)*16^J:
NEXT: G=1
41 RETURN
50 A$=STR$(X-1):PRINT"Address"A$;:INPUTA$:GOSUB40:IFG>1THENBEEPELSEX=A:A=Y:X=P+40*L+A-X:IF
X>=0 ANDX<MTHENP=XMOD40:L=X\40

```

Cont'd on next page.

```

51 RETURN
60 LOCATE0,7:IFSTHENPRINT" Search":LOCATE13,7ELSEPRINTES"L"D"byte search";
61 LINEINPUT"?";A$:IFA$=""THENIFSTHENA$=CHR$(B):Y=B:G=1ELSERETURNELSEGOSUB40:IFG=1THENIFY
<TT HENA$=CHR $(Y)ELSEIFY=999THENS$="":A$="
62 S$=S$+A$:D=LEN(A$):S=0:GOTO60
70 PRINT"Poke"STR$(Y)"? ";:LINEINPUTA$:IFA$>""THENGOSUB40
71 IFG<2ANDY<TTHENPOKEA,Y:RETURNELSEBEEP:RETURN
80 PRINT"Any key stops scan; then, for character at cursor, read: 7-bit ASCII equivalent;decimal address &
byte; character; opt. hex byte & address; opt. decoded BASIC; 16-bit binary value. (tap any key)
";:A$=INPUT$(1):CLS:PRINT
81 PRINT"With scan stopped: spacebar, BS, arrow, & SHIFT-arrow keys step cursor; R runs; H toggles hex
values; C clears screen; B toggles BASIC decode; D for directory;N & L jump address; ESC for
MENU":PRINT:GOSUB50:CLS:PRINT
82 PRINT"Return key scans; with cursor at end of display: return key scrolls; T pages. Prompts (prefix
hex # by H): (A)ddress; (F)ile; (P)oke; (S)earch: enter bytes orequal-length strings; 999 clears search
list":GOSUB60:CLS:GOTO32

```

# INVEST/BAS PROGRAM LISTING NUMBER FIVE by Jack E. Willson

```

10 '*****
20 'Name is 'INVEST/BAS'
30 '1993 By Jack E. Willson, York, Maine
40 'Comparison of two municipal bonds or other securities
50 '*****
200 F$ = "$$###,###;###.##": Z$ = "###.### %"
250 TY=0:FV=0:C=0:R=0:TY2=0:FV2=0:C2=0:R2=0
300 CLS
305 PRINT "Enter Information For First Security":PRINT
310 INPUT "Enter Security Name:":N$
320 INPUT "Enter Purchase Date (YY/MM/DD):":PD$
330 INPUT "Enter Maturity Date (YY/MM/DD):":MD$
340 INPUT "Enter Term in Years:":TY
350 INPUT "Enter Face Value of Security:":FV
360 INPUT "Enter Cost Per $100:":C
370 INPUT "Enter Rate %:":R
400 PRINT
405 PRINT "Enter Information For Second Security":PRINT
410 INPUT "Enter Security Name:":N2$
420 INPUT "Enter Purchase Date (YY/MM/DD):":PD2$
430 INPUT "Enter Maturity Date (YY/MM/DD):":MD2$
440 INPUT "Enter Term in Years:":TY2
450 INPUT "Enter Face Value of Security:":FV2
460 INPUT "Enter Cost Per $100:":C2
470 INPUT "Enter Rate %:":R2
500 PRINT:INPUT "Press Enter To Continue":ZZ$
510 CLS
900 NT = FV/100 'Face Value/100
905 NT2 = FV2/100
910 TC = NT * C 'Total Cost
915 TC2 = NT2 * C2
920 I1 = FV *(R/100) 'Yearly Interest
925 I2 = FV2 * (R2/100)
930 SAP = I1/2 'Semiannual Interest
935 SAP2 = I2/2

```

Cont'd on next page.



```

940 TI = I1 * TY 'Total Interest Earned
945 TI2 = I2 *TY2
950 RTN = TI/TC*100 '% Return Over Term
955 RTN2 = TI2/TC2*100
1000 CG = FV - TC 'Calculate Capital Gain
1005 CG2 = FV2 - TC2
2000 PRINT
2010 PRINT TAB(5) "Name of Security: ";TAB(33) N$; TAB(53) N2$
2020 PRINT TAB(5) "Date of Purchase: ";TAB(33) PD$;TAB(53);PD2$:PRINT
2030 PRINT TAB(5) "Date of Maturity: ";TAB(33) MD$;TAB(53);MD2$
2040 PRINT
2050 PRINT TAB(5) "Face Value:" TAB(25) USING F$;FV:: PRINT TAB(45) USING F$;FV2:PRINT
2060 PRINT TAB(5) "Interest Rate:" TAB(34) USING Z$;R:: PRINT TAB(54) USING Z$;R2:PRINT
2070 PRINT TAB(5) "Cost Per $100:"TAB(25) USING F$;C:: PRINT TAB(45) USING F$;C2:PRINT
2080 PRINT TAB(5) "Total Cost:"TAB(25) USING F$;TC:: PRINT TAB(45) USING F$;TC2:PRINT
2090 PRINT TAB(5) "Interest Per Year:" TAB(25) USING F$;I1:: PRINT TAB(45) USING F$;I2: PRINT
2100 PRINT TAB(5) "Coupon Interest:" TAB(25) USING F$;SAP:: PRINT TAB(45) USING F$;SAP2:PRINT
2110 PRINT TAB(5) "Total Interest:" TAB(25) USING F$;TI:: PRINT TAB(45) USING F$;TI2
2120 PRINT
2130 PRINT TAB(5) "Total Yield: "TAB(34) USING Z$; RTN :: PRINT TAB(54) USING Z$; RTN2: PRINT
2135 PRINT TAB(5) "Capital Gain-Loss:" TAB(25) USING F$;CG:: PRINT TAB(45) USING F$;CG2
2140 PRINT: INPUT "Do You Wish a Printout of Comparison (Y/N): ";ZZ$
2145 IF ZZ$ = "Y" OR ZZ$ = "y" THEN GOTO 4000
2150 IF ZZ$ = "N" OR ZZ$ = "n" THEN GOTO 5000
4000 PRINT
4005 LPRINT TAB(10) "Comparison of Two Municipal Bonds Relative to Rates":LPRINT:LPRINT
4010 LPRINT TAB(5) "Name of Security: ";TAB(33) N$; TAB(53) N2$:LPRINT
4020 LPRINT TAB(5) "Date of Purchase: ";TAB(33) PD$; TAB(53);PD2$:LPRINT
4030 LPRINT TAB(5) "Date of Maturity: ";TAB(33) MD$; TAB(53);MD2$
4040 LPRINT
4050 LPRINT TAB(5) "Face Value: "TAB(25) USING F$;FV:: LPRINT TAB(45) USING F$;FV2:LPRINT
4060 LPRINT TAB(5) "Interest Rate: "TAB(34) USING Z$;R:: LPRINT TAB(54) USING Z$;R2:LPRINT
4070 LPRINT TAB(5) "Cost Per $100: "TAB(25) USING F$;C:: LPRINT TAB(45) USING F$;C2:LPRINT
4080 LPRINT TAB(5) "Total Cost: "TAB(25) USING F$;TC:: LPRINT TAB(45) USING F$;TC2:LPRINT
4090 LPRINT TAB(5) "Interest Per Year: ";TAB(25) USING F$;I1:: LPRINT TAB(45) USING F$;I2:LPRINT
4100 LPRINT TAB(5) "Coupon Interest: " TAB(25) USING F$;SAP:: LPRINT TAB(45) USING F$;SAP2:LPRINT
4110 LPRINT TAB(5) "Total Interest: " TAB(25) USING F$;TI:: LPRINT TAB(45) USING F$;TI2:LPRINT
4120 LPRINT TAB(5) "Total Yield: "TAB(34)USING Z$; RTN ::LPRINT TAB(54) USING Z$;RTN2:LPRINT
4130 LPRINT TAB(5) "Capital Gain-Loss: " TAB(25) USING F$;CG:: LPRINT TAB(45) USING F$; CG2
5000 INPUT "Do You Wish To Make Additional Comparisons (Y/N): "; SS$
5010 IF SS$ = "N" OR SS$ = "n" THEN CLS:PRINT "End of Program"
5020 IF SS$ = "Y" OR SS$ = "y" THEN CLS: GOTO 200

```



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|                                                     |             |
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| NEWCOMERS GUIDE VOLUME 1                            | \$ 7.95 (V) |
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PLEASE NOTE: All CN80 DISK SERIES are on FLIPPY 5-1/4" disks; TRS/LS-DOS 6.3 format on Side 1 and TRSDOS 1.3 format on Side 2. Also available on 3-1/2" disks @ \$5.50 each (LSDOS 6.3.1 or LDOS 5.3.1 format only). Each Disk Series has Bonus programs.

## MANUALS & PROGRAMS PUBLISHED BY CN80

|                                                                                                                                                                  |              |
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| TRS-80 Mod 4 High Resolution Communications Program. Supports ANSI & AVATAR control codes, IBM graphics, & file transfer by X or Y modem. Hi-Res board required. |              |
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|                       |              |
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Or one 5-1/4 360K and one 3-1/2 720K drive.

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|                                                                                               |              |
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|                                              |              |
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|                                                                                                                         |              |
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## TOP QUALITY PRINTER RIBBONS

| Printer                     | Radio Shack<br>Cat. Number | CN80<br>Number | Type             | Price Each for<br>One 6 or More |       |
|-----------------------------|----------------------------|----------------|------------------|---------------------------------|-------|
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| DWP 520, 230, 210           | 26-1445                    | CN1025         | M-S REFILL       | 4.50                            | 4.00  |
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ALL RIBBONS ARE BLACK, CART.= Plastic Cartridge, REFILL= Refills Only/No Cartridge.

Add for Shipping and Handling

1 to five items add (Y) .... 6 or more items add (Z)

Please refer to the CN80 Product Guide Shipping and Handling Schedule.

Some ribbons for the older Radio Shack printers are not stocked, but are still available by special order, please allow an additional week shipping time. All stock ribbons are shipped within 24 hours from the time the order is received. C.O.D orders accepted. Government and educational institution purchase orders are accepted. Sorry, we do not accept credit card orders.





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AND ROMCLOCK4 or 3 PROGRAM  
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ROMCLOCK4 OR ROMCLOCK3  
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by David Goben

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Complete program and manual.  
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## TRS-80 MODEL III/4 EMULATOR

By Jeff Vavasour

**Run your TRS-80 Model 4  
and Model III Software on your PC.**

Virtually all software available for your Model III or Model 4 will run on your IBM PC or PC Clone computer using The TRS-80 Model III/4 Emulator. Install TRSDOS 1.3, LDOS 5.x, NewDos (Model III DOSes) TRSDOS 6.x, LS-DOS 6.3.x, (Model 4 DOSes) on your PC.

A Model 4 or 3 and a PC with at least 384K, CGA graphics, MS-DOS 3.3 or higher is required. If you still have TRS-DOS disks but no longer have your Model 4 computer *Computer News Transfer Service* will transfer your files from your TRS-80 disks to the emulator formatted PC disks required for use in your PC, \$5 per disk.

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Automatically install current date and time on boot up.

No soldering, no wiring, you do not have to open your computer.

Just plug the I/O-BUS CLOCK unit on the 50 pin I/O bus connector of the Model 4/4P/4D. Compatible with using a hard drive by using a 50 pin Y cable.

Unit is shipped with program for either Model 4 TRS/LS-DOS or Model 3 DOS LSDOS 5.x.x or TRSDOS 1.3.

Please specify Model 4 or Model 3 when ordering.

# Sixteen Model 4 Programs!

Mark Reed's Model 4 Utility Disk now contains 16 useful utilities for every Model 4 owner:

- **CLOSE**, to close all open files on a disk;
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- **MAPMEM**, to list all low and high memory modules;
- **MOVE**, to transfer files from one drive to another;
- **PRINT**, to format and print text files;
- **PRT**, to print control codes and graphics characters;
- **RECLAIM**, to remove unused high memory modules;
- **SETMOD**, to set or reset files' MOD flags;
- **SETVIS**, to make files visible or invisible;
- **SWAP**, to exchange disk drive numbers;
- **UNFILTER**, to remove a filter from a device without resetting the device;
- **VLOAD**, to display specially formatted disk files; and
- **VSAVE**, to save the display to a specially formatted disk file.

The Utility Disk comes with a help file, a 23-page manual, and full support from the author. Order your copy today for only \$14.95 (plus shipping and handling) from *Computer News 80*, P.O. Box 680, Casper, WY 82602-0680.

## Introducing ED-IT for the Model 4 by Mark Allen Reed

For TRSDOS 6.2 or LS-DOS 6.3. ED-IT is a brand new full-screen text editor that combines power, versatility, and ease of use. Its features include fast operation, a large text buffer (nearly 47K with no high memory modules installed), an easy-to-use menu system (activated by the <BREAK> key), three special programming modes (for assembly language, BASIC, and C), word-wrap capability, block operations (including delete, copy, move, save, and load), search operations (including find, change, change to the end of the file, repeat last find or change, and jump to specific line number), and the ability to enter any ASCII character into the document. ED-IT also allows you to execute nearly any DOS command without leaving the editor or affecting the text buffer. You can view a disk directory, purge unwanted files, even **FORMAT** and **BACKUP** from within ED-IT!

ED-IT is powerful enough for a programmer, yet simple enough for the casual user. It is excellent for editing **README** files, patch listings, and job control language (JCL) files. ED-IT comes with a complete instruction manual and full support from the author. Order your copy today for only \$17.95 (plus shipping and handling) from *Computer News 80*, P.O. Box 680, Casper, WY 82602-0680.



## Symphony 90



*Opening a new era of TRS-80 Computer Generated Music*

Use the full power of your Model 4  
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If you want to have your files transferred from one media to another. Such as having your files transferred from 5-1/4 disks to 3-1/2 we can do that for you. If you want to have files transferred from an IBM (MS-DOS) format to a TRSDOS/LS-DOS format, or from TRS-80 to IBM (MS-DOS) we can provide that service. However we do not have the equipment to handle 8" disks. Call or write for further details concerning the transfer service.

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Now only \$140. Pickles & Trout CP/M-2.2m for your Radio Shack TRS-80 Model-II, -12, -16, or -6000 computer.

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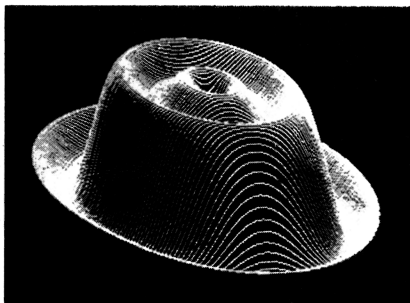
# Grafyx Solution™

HIGH RESOLUTION BOARD FOR MODEL 3/4/4P/4D

Distributed by Computer News 80

Free Draw Program  
Included

## Hi-Resolution Graphics for Mod 4/4D/4P/III



**Superior Hardware.** The Grafyx Solution provides 153,600 pixel elements which are arranged in a  $640 \times 240$  or on the Model III a  $512 \times 192$  matrix. Hundreds of new business, personal, engineering, and educational applications are now possible. The hi-res display can be shown on top of the standard display containing text, special characters, and block graphics. This simplifies program debugging, text labeling, and upgrading current programs to use graphics. The Grafyx Solution fits completely within any tape or disk based Model 4, 4D, 4P, or III. Installation is easy with the plug-in, clip-on Grafyx Solution board.

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Purchase a Grafyx Solution Hi-Res Graphics Board for \$ 99.00 and receive a free copy of DRAW a powerful graphics program which allows drawing or designs to be easily created on a Model III/4/4P/4D.

\$ 99.00 Add (Z) S&H

Specify Model 3, Model 4p, Model 4 Gate Array, or Model 4 Non Gate Array when ordering. The boards are different for each. Please include phone number.



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## Programs by David Goben

Available only from *Computer News 80*

**David's Model 4 File Utilities:** for TRSDOS/LS-DOS 6.x. Nine great file handling utilities to ensure the reliability of your files and save you hours of work. Of them: **DSPTXT** will allow you to view ASCII files in forward and reverse, featuring automatic word wrap, tab expansion, printed form setup, and embedded graphics. **INDEX4** will list a disk's visible files in alphabetical order, and allows you to add comments to describe them. **ERASE** totally removes all traces of a file from a disk — ensure data security. **UNREMOVE** will recover removed, killed, and purged files. Will also list all the removed files on a disk. **SAVBAS** allows you to recover a BASIC program stored in memory after you leave BASIC (and forgot to save it). Many other utilities. \$9 + S&H.

**David's Model III LDOS File Utilities:** for LDOS 5.x. Has the same programs as those described above, except for **SAVBAS** (not needed). Contains 8 programs. \$9 + S&H.

**David's Model 4 System Utilities:** for TRSDOS/LS-DOS 6.x. 16 powerful programs to streamline your system maintenance. Featured: **XMEDISK** is the most powerful MemDISK utility going. Maintain more than one MemDISK! **XDRIVE** will allow you to make one disk drive act like 2. **ONEPASS** is the most powerful single-pass disk duplicator ever. Even more powerful than QFB and DISKCOPY. **VERDISK** will verify the integrity of your disks. **PRINT** allows you control any printer from the DOS command prompt. Plus many other useful utilities. \$16 + S&H.

**David's Model III LDOS System Utilities:** for LDOS 5.x. 14 powerful programs to streamline your system maintenance. Includes all programs described above, less **XMEDISK**. Includes **VIDX** to greatly enhance your screen and character control. \$16 + S&H.

**T62DOSXT:** For TRSDOS 6.2.x. Still use TRSDOS 6.2 but want to re-enable the dating? T62DOSXT will patch your system to take TRSDOS 6.2 through the end of 1999. Something that LSI, the DOS's creator said was impossible. **FULL** compatibility with the date format of LS-DOS 6.3. Includes numerous optional system enhancement patches. Also features **DATECONV** to upgrade disks to the new format. **ONEPASS** for disk duplication. Plus more! Unlike other patches, this package is safe with older disks that have not been converted. Use T62DOSXT with complete confidence. \$18 + S&H.

**PACK:** For TRS-80 or MS-DOS. Pack, unpack, compress, or superpack your BASIC programs for faster operation and more efficient use of disk space. The TRS version contains both Model I/III and 4 versions. MS-DOS version requires DOS version 2 or higher. Please specify computer system when ordering. \$17.95 + S&H.

**DEA: The Disk Editor/Assembler.** The most powerful integrated editor/assembler ever written. Contains both Model I/III and 4 versions. Has more enhanced features than any other. Conditional assembly, long label names, and abundant powerful math functions that are lacking in other packages. Reference addresses in, or include code from other disk files while assembling programs. These are only a small part of its many powerful features. The DEA package also includes a disassembler, cross reference utilities, and plentiful programming examples. DEA was used to write EVERY program listed in *Computer News 80* by David Goben, including BCX, MagicDraw, Symphony 90, Diskopt, SCRIPT, and all the others!

**DEA: Making Assembly Language Accessible.** \$49.95 + S&H.

## High Resolution Programs by David Goben

Available only from *Computer News 80*

**MagicDraw: Making screen design easy.** For Model 4/4p/4d with a hi-res board and a serial mouse with mouse driver software. No high resolution Computer-Aided Drawing program has ever been like it. Nothing comes close to the speed, ease of use, and the power offered by MagicDraw. NONE! If you thought drawing on the hi-res screen was too cumbersome or too difficult and that you would have to leave that kind of work to others with more experience, then think again. MagicDraw is as close to buying hi-res experience as you can get.

MagicDraw offers you dozens of features more than its nearest competitor. It also offers you a menu selection system that was said to be totally out of reach of a TRS-80. Wrong! Choosing the right tool for the job has never been so easy. No more going to help screens or digging through manuals to remember a tool's selection command; with MagicDraw you can do so right from an easy-to-use menu.

**MagicDraw: Realizing dreams.** \$65 + S&H.

## Hi-Res Utilities Package: for Model

4/4p/4d with a hi-res board. Take control of your hi-res artwork with this group of 10 utilities. These are the fastest hi-res utilities ever written. **HRLOAD** will load a high resolution screen file in a fraction of the time of its nearest competitor. It will load the normal HR files, the "crunched" CHR files, and super crunched SHR files. **HRSAVE** allows you to save hi-res screen in HR, CHR, and SHR format. **HRFXPR** allows you to dump the hi-res screen to an Epson-compatible printer with an incredible variety of resolutions. **HRIBMPRT** dumps to an IBM ProPrinter-compatible printer. **HRLSRPRT** dumps to a LaserJet-compatible printer or DeskJet printer. Seven sample files included. Other utilities allow you to clear, flip, view and shrink the screen. Take the difficulty out of processing your hi-res screens. \$15 + S&H.

## Postmaster Support Utilities: For

Model 4/4p/4d with a hi-res board and with POSTMASTER. Enhance your work with David P. Miller's fantastic POSTMASTER program with this set of utilities. **MAKEICN** allows you to capture a portion of the screen and convert it into a POSTMASTER icon. 3 capture box sizes allows you to capture larger portions of the screen and shrink them down to icon size, if you wish to. **ADDICN** allows you to add a captured icon to a library file, which POSTMASTER can use to choose from several icons. **DSPICN** allows you to view the icons you captured. **DSPLIB** displays your POSTMASTER icon libraries. **DECDFFON** and **DECDDBOR** allows you to decode POSTMASTER font and border files so that you can edit and customize them using any text editor or word processor that can process ASCII files, such as SCRIPT or EDIT-4 (both available from CN80). **ENCDFFON** and **ENCDDBOR** allows you to encode ASCII files of your own creation, or back into font and border files to make them usable by POSTMASTER. **ADDFFON** and **ADDDBOR** allow you to combine font and border files into libraries for use by POSTMASTER. Other utilities included, along with sample files. \$39 + S&H.

## POSTMASTER 24: for Model 4/4p/4d with a

hi-res board and with POSTMASTER. This filtering program allows you to print your POSTMASTER printouts on a 24-pin Epson-compatible printer (such as CN80's Seikosha SL-90) with super sharp laser quality. Works transparently to the rest of the system, loading right along with POSTMASTER, and even removing itself when you are done with PM. This is a utility that has to be seen to be believed! \$15+ S&H.

## FAST System Utilities

By David Goblen, & only from *Computer News 80*

**Fbackup:** The *fastest* file-by-file backup utility ever written for the Model III or Model 4/4p/4d. Designed for LDOS 5.3, TRSDOS 6.2, or LS-DOS 6.3 it's a whopping **8 TIMES FASTER** than the BACKUP/CMD program supplied with these Disk Operating Systems. Plus it has many new features: alphabetized backups, single drive file-by-file backups, and more. It will even tell you how many disks you will need. This program has to be seen to be believed. Specify Model III LDOS 5.3 or Model 4 TRSDOS 6.2/LS-DOS 6.3 on order. \$15 + S&H.

**Fastback:** The *fastest* hard disk backup utility ever written for the Model III or Model 4/4p/4d. No other hard disk backup or archiving utility is faster. **NONE!** Don't be fool by another's claims. Selectively backup or restore files, alphabetize, even see how many disks a backup will require. As easy as **FBACKUP**, but made for those large files that normal backup disks would not be able to hold. Designed for LDOS 5.3, TRSDOS 6.2, and LS-DOS 6.3. Specify Model III or Model 4 on order. \$29.95 + S&H.

**Fformat:** This is the *fastest* disk formatting program ever written. Formats a 180K disk in 18 seconds! Works like FORMAT, but with greater versatility and speed. It can even apply high level formats and verify hard disks in one step -- no more fumbling with more than one utility. A PURGE parameter allows you to reformat disks in a flash. Format 80-cylinder 2-sided disk with ease with the BIG parameter. Designed exclusively for LDOS 5.3, TRSDOS 6.2, and LS-DOS 6.3. Specify Model III or Model 4 on order. \$15 + S&H.

## Word Processing

by David Goblen, & only from *Computer News 80*

**Script:** Word processor for the Model III and 4/4p/4d. **Not** a patch program. This is a *complete* word processor with all the features made famous by SCRIPSIT, plus dozens of new amenities. Powerful editing, formatting, and printing features you would expect only from packages costing much, much more. A poor person's word processor that produces professional results. Specify computer and DOS when ordering. \$37.95 + S&H.

**Script Spelling Verifier:** For Model III and 4/4p/4d. A powerful spelling checker/corrector for **SCRIPT**, Disk SCRIPSIT, ALLWRITE, ASCII, TED, and other ASCII format files. Features over 75,000 words. Add up to 17,000 more words to an additional custom dictionary. Specify computer and DOS when ordering. \$37.95 + S&H.

**SuperScrpsit Spelling Checker:** For Model III and Model 4/4p/4d. Add spell checking / proofreading capabilities to SuperSCRIPSIT. Fully integrates into the word processor. Easy to install. Specify computer when ordering. \$37.95 + S&H.

## Model 4 Spreadsheets

Written by David Goblen

Available only from *Computer News 80*

**BCX:** *The Business Calculator for Extended Memory Model 4's.*

**The spreadsheet for the 90's.** For Model 4 128K+. Called by its users the *friendliest* and *fastest* spreadsheet ever written for the Model 4. **No** Model 4 spreadsheet calculates faster than **BCX**. It is so fast that users have become used to keeping the automatic update feature on at all times; something you would never want to do with VisiCalc or Multiplan. **BCX** can calculate sales projections, income taxes, personal budgets, cost estimates, engineering changes, balance your checkbook, plus *thousands* of other applications. Whatever you need tabulated or computed, **BCX** can do! Play "what if" with your spreadsheets to figure your best strategies; **BCX** will remember your calculations so that when you make changes that will affect other cells, the entire spreadsheet can be *quickly* and *automatically* updated to reflect those changes, no matter how many or how drastic.

Among its numerous features are:

- Support of up to 1 megabyte of memory
- A huge 64 x 256 cell matrix (16,384) to accommodate any needs
- Powerful, complete set of trigonometry functions for engineers
- Powerful automatic table look-ups
- Range math that transcend simple column or row limits
- Read and use VisiCalc sheets with little or no change
- Read and use Busy-Calc sheets without changes
- On-line, detailed quick reference windows to jog your memory
- Pop-up command windows in plain English; no trick keywords
- Fastest screen scrolling of any spreadsheet
- Powerful printer options to set up any printer
- Huge hand-holding hands-on tutorial to help you master BCX
- Many powerful replication and data manipulation features
- A handy quick reference and a complete reference manual

and many more capabilities. Has all the features users wished VisiCalc and Multiplan had. With all this power, why settle for anything less?

**BCX:** *The way spreadsheets should be.* \$109 + S&H

Demo disk available for \$15. Good toward purchase of full program.

**Busy-Calc:** *The Family & Small Business Spreadsheet.*

For Model 4 64K+. An economical, yet powerful and extremely fast spreadsheet for those who do not need huge layouts. A comfortable 64 x 64 cell matrix with powerful function, math, and reference support. Can support up to 4 banks of extended memory if you have it, though not necessary. Has most of the features of **BCX**, though simpler in structure and thus easier to use.

**Busy-Calc** comes complete with a reference manual featuring an extensive hand-holding, hands-on tutorial. A quick reference manual is included when you just need a refresher.

**Busy-Calc:** *Making spreadsheets easy.* \$79.95 + S&H

Demo disk available for \$10. Good toward purchase of full program.



## Still More Programs by David Goben

Available only from *Computer News 80*

**Model 4 Small C:** For Model 4. Program in the language of the 90's without having to memorize huge volumes of complicated manuals. Small C is a large, almost complete subset of the C programming language, and *much* more powerful than any other Small C package previously released for CP/M or MS-DOS. C is quickly becoming the programming language of choice by beginner and veteran programmers alike. See what it's all about without it costing you an arm and a leg. The package comes complete with the Small C compiler, program optimizer, macro assembler, and linking loader, plus other programs. What's more, the **complete** source code for all these files (except for MAKE/CMD) is included in this package, including the **libraries**. More than that, **all** these files are written in Small C! So see by real-world example practical Small C programming! Complete with 225 page reference. **\$45 + S&H**

### Disk Optimization Package:

For Model 4. Quickly defragment the files on your disks or hard disks, and optimizes their storage space. Super fast operations for quick results. During normal everyday operations, you delete, create, and expand or compress files. This causes files to be broken up into several different locations on a disk. This results in slower access to your files. The included **DIRCHECK** program will test your drive for errors, and fix most that you may have thought were fatal. The included **TESTFRAG** tests a drive to see if files exist that are fragmented. **DISKOPT** will defragment your files, and optionally compress the disk space, to prevent easy fragmentation of files yet to be added to the drive. Full and complete support for Model 4 SubDirectories (below) included! Uses extended memory if available for even faster operation. An essential utility especially for hard disk owners. **\$29.95 + S&H**.

### SubDirectory Utilities:

For Model 4. Totally eliminate the 256-file limit of a disk drive with this set of utilities. Create **additional** directories that are subordinate to a disk's normal directory, or create whole branched systems, placing only related files in each SubDirectory. This set of utilities **DO NOT** create large, cumbersome files on your disks. Each SubDirectory takes up only a **very small** amount of disk space. These SubDirectories instead share the main directory allocation map, making large support files totally unnecessary. Even create SubDirectory trees on a floppy disk! Especially handy for hard disk users who are too often plagued by running out of file "slots" in a drive **long** before they run out of drive space. An essential utility for those who must keep huge repositories of files, or those who would prefer to keep related programs/files in separate niches. The SubDirectory Utilities is your answer. **\$19.95 + S&H**.

### SuperSPOOL:

For Model 4. Increase your productivity by decreasing the time you spend waiting for your printer to finish. Allows printing in the "background" while you go on with your other computing tasks. Unlike the Model 4 SPOOL utility, **SuperSPOOL** will take advantage of all your extended memory, even if you have non-standard add-ons that have patched the DOS to support 32K banked blocks. Can use up to 1 Megabyte if you have it. On a standard 128K Model 4, this gives you a 64K printer buffer. Also unlike the DOS's SPOOL utility, **SuperSPOOL** will not lock up your computer and lose its data if the PAUSE feature is on. Even further, **SuperSPOOL** can load into low memory, so that those programs that cannot run with high memory routines present will operate. Using **SuperSPOOL** is like buying an expensive printer buffer device, but does not take up valuable desktop space, and costs a whole lot less. Set your printer free with **SuperSPOOL**. **\$15 + S&H**

## TRANSFER FILES BETWEEN Model 4/4P/4D and MS/PC

### MS UTILITIES BY DAVID P. MILLER

Transfer files quickly and easily between your Model 4/4P/4D and IBM-PC Clones.

Transfer files from MS-DOS formatted disks to TRS/LSDOS formatted disks, or from TRS/LSDOS to MS-DOS formats on your Model 4 or 4P/4D.

Read MS-DOS formatted disk directories or format MS-DOS disks with your Model 4/4P/4D. Add linefeeds or strip linefeeds as needed.

**\$30.00 Plus S&H**

System Requirements: MS-Utilities only operates on the Tandy Radio Shack Model 4/4P/4D Computers using TRSDOS 6.2.x or LS-DOS 6.3.x operating system. It will read and transfer files stored on a disk formatted with LDOS 5.x. and TRS/LSDOS 6.3.x.

### DAVE'S MOUSE MENU

By David P. Miller

Build a up to twenty six DOS command menu with the ability to repeat the DOS command by pressing a keyboard letter, pressing the arrow keys to "point and shoot" or use your mouse for "point and shoot" selection.

No longer do you have to memorize DOS commands and parameters that you use all the time. Simply type them in once and then select them from the menu.

Fully compatible with the use of a mouse, keyboard or arrow keys.

**\$ 15.00 Plus S&H**

David P. Miller is the author of PostMaster

Refer to March 1993 CN80 (Vol. 6 No. 3) for more information about Dave's Mouse Menu.



# HOWE SOFTWARE FOR MODEL I, III AND MODEL 4/4D/4P

Published and Distributed by Computer News 80

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## **TYPITALL Word Processor \$ 49.95**

Word processor upwardly compatible with SCRIPSIT -- it reads your old SCRIPSIT files and uses the same formatting and cursor movement commands. Send any control/graphics character to the printer. Print formatted text on the screen, or send it to a disk file for later printing. Merge data from a file during printing. Assign any sequence of keystrokes to a single control key. Call up to 16 help screens at any time. Move cursor forward or backward by character, word, line, paragraph or page. Complete with easy to read manual.

## **TYPITALL Word Processor with Spelling Checker \$ 79.95**

Optional spelling checker has 29,500 word dictionary -- verify a 3,500 word document in less than two minutes.

## **SYSTEM DIAGNOSTIC \$ 69.95**

Complete tests for every component of your TRS-80 Model 1, 3, or 4 (separate versions for each model). ROM:checksum test. RAM:three tests. Video Display: character, video RAM, signal. Keyboard: every key contact tested. Line printer: character tests. Disk Drives: disk controller, drive select, track seek, read sectors, formatting, read/write/verify data with or without erasing, disk drive timer, disk head cleaner. Single/double density, single sided or double sided drives from 1 to 99 tracks. RS-232-C Interface: connector fault, data transmission, framing, data loop, baud rate generator. - Specify version when ordering.

## **SMART TERMINAL \$ 19.95**

The intelligent telecommunications program for TRS-80 Model 1, 3, 4 or 2/12 CP/M. Memory buffer for sending and receiving file. Automatic transmission and reception of data. Character translations, true BREAK key, and help screens.

## **HOWE SOFTWARE FOR TRS-80 AND MS-DOS SYSTEMS**

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## **SMALL BUSINESS ACCOUNTING WITH PAYROLL \$ 99.95**

Based on the Dome Bookkeeping Record #612, this program handles bookkeeping and payroll for a small business. Bookkeeper provides single entry ledgers for income and expenses, computes monthly and yearly summaries. Payroll handles up to 99 employees, with automatic deductions of F.I.C.A. and Federal income tax. State tax and three optional deductions also included. Prints payroll and expense checks, Form 941 reports and W-2 Forms.

## **MAILING LIST \$ 79.95**

Create and maintain mailing lists of up to 32,767 names and addresses. Up to five-line entries, including title, first and last names, optional second line, address, city, state, zip code, optional fifth line and telephone number. Sort or search for names by any field. Prints labels in 1, 2, 3, or 4 adjustable columns or on envelopes. Print form letters with any substitutions.

## **HOME BUDGET and CHECKBOOK ANALYST \$ 49.95**

A complete checkbook program combined with budget comparisons, income and expense analysis, and projections. Computes current checking balance. Also handles non-check expenses, bank debits, and income. Monthly and year-to-date summaries, yearly projections based on data up to a known month.

## **SMALL BUSINESS MANAGEMENT SYSTEM \$ 149.95**

A complete point-of-sale program for a small business. Order desk handles order entry, invoicing. Includes 1,999 8 character part numbers. Bookkeeper maintains general ledger. Inventory produces sales reports. Installation sets program to your business.

ADD SHIPPING AND HANDLING TO ABOVE PRICES

### **IDIM BULLETIN BOARD HOST SYSTEM** by Leonard Lorden

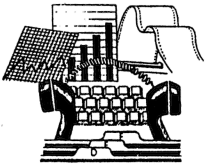
IDIM (I DID IT MY WAY) Bulletin Board Host System is a completely new software system written for the Model 4 computer. It comes with a 22 page manual with full instructions and three disks of programs for setting up your own bulletin board.

\$ 60 plus Shipping and Handling.

### **VH/LIB By Richard VanHouten** **LIBRARY OF SMALL C FUNCTIONS**

Features Wildcard directory Searching, low and high resolution graphics routines (with emphasis on the high resolution routines) and mouse interface routines. It is a must for anyone programming in Small C on the Model 4.

\$19.95 plus Shipping and Handling



## ANSITERM 4

by Richard VanHouten

TRS-80 Model 4 High Resolution  
Communications Program.

Supports ANSI (American National Standards  
Institute) and AVATAR control codes. IBM  
graphics and file transfer by X-modem or  
Y-modem.

System requires Model 4 with Modem and  
High Resolution Board.

Program complete with printed manual.

\$ 30.00 (Y) S&H

Order from CN80



## 2400 Baud External Modem

from Computer News 80

\$ 78

Plus \$4 S & H

2400 baud transmission speed  
Hayes compatible  
Compatible with Model 3/4/4D/4P  
Compatible with IBM PC/XT/AT  
Auto dial/answer  
Eight status indicator lights  
Built-in speaker with volume control  
Second jack for local phone  
Call progress and error detection  
Ten year manufacturer's warranty  
Manufactured in the USA

**Complete with all cables and  
TRS-80 Communication Software**

## I/O-BUS LD INTERFACE

### for EXTERNAL FLOPPY DISK DRIVES

Add external floppy disk drives to your  
Model 4P - no internal wiring - plug the  
interface into the external 50 pin I/O  
connector on your 4P and plug your  
external disk drives into it.

Add additional floppy disk drives to your  
Model 4 or 4D - again just plug the  
interface into the 50 pin I/O bus connector  
and add floppy disk drive 4 & 5.

Software for TRSDOS 6.2.x and LS-DOS  
6.3.x and cable included.

Controls Double-Sided 5.25 360K, 3.5 720K  
or Single-Sided 180K drives.

\$ 180 + \$4 S&H

Software for LDOS 5.3.x \$ 29.94 + S&H  
additional. For use with the Model 4 in the  
III mode.

## CONNECTORS

| DESCRIPTION                              | PRICE |
|------------------------------------------|-------|
| <b>FLAT RIBBON CABLE CONNECTORS</b>      |       |
| 50 Pin Male Edge Card Mating Connector   | 4.95  |
| 50 Pin 25x2 Edge Card/Female             | 1.75  |
| 50 Pin 25x2 Header Female/Socket         | 1.25  |
| 50 Pin 25x2 Header Male/Plug w/mounting  | 8.50  |
| 50 Pin 25x2 Header Male/Plug no mounting | 8.50  |
| 36 Contact Centronics Male (Printers)    | 4.00  |
| 34 Pin 17x2 Header Female/Socket         | 1.95  |
| 34 Pin 17x2 Edge Card/Female             | 1.35  |
| 34 Pin 17x2 Header Male/Plug No Mounting | 7.50  |
| 34 Pin 17x2 Header Male/Plug W/Mounting  | 7.50  |
| 25 Pin DB25 (RS232) Male/Plug            | 3.00  |
| 25 Pin DB25 (RS232) Female/Socket        | 3.00  |

## PC BOARD MOUNT

|                                          |      |
|------------------------------------------|------|
| 34 Pin 17x2 Box Header - Straight Solder | 2.50 |
| 50 Pin 25x2 Box Header - Straight Solder | 4.50 |

## CONNECTOR S&H

Add \$ 2.00 Shipping and Handling if  
ordered alone.  
Shipping and Handling included if ordered with  
other items.

## EXTENSION BLOCKS AND FLAT CABLE

| DESCRIPTION                                                    | PRICE       |
|----------------------------------------------------------------|-------------|
| <b>EXTENSION CONTACT BLOCKS</b>                                |             |
| 34 Pin 17x2 PCB Socket - 3/16" High                            | 5.50        |
| 34 Pin 17x2 PCB Socket - 5/16" High                            | 5.50        |
| 34 Pin 17x2 PCB Socket - 5/8" High                             | 5.50        |
| <b>EXTENSION S&amp;H</b>                                       |             |
| Add \$ 2.00 Shipping and Handling if<br>ordered alone          |             |
| Shipping and Handling included if ordered with<br>other items. |             |
| <b>FLAT RIBBON CABLE</b>                                       |             |
| 25 Conductor                                                   | .38 per ft. |
| 34 Conductor                                                   | .51 per ft. |
| 50 Conductor                                                   | .75 per ft. |

## CABLE S&H

Add \$ 3.00 Shipping and Handling if  
ordered alone.  
Shipping and Handling included if ordered with  
other items.

## CUSTOM CABLES BUILT UPON REQUEST

Call for price quotes.



by J. F. R "Frank" Slinkman

ACCURATE  
SIMULATION OF A  
VIDEO POKER  
MACHINE

Play real poker on your computer with  
remarkable screen renditions of the playing  
cards. Optimum video poker strategy can be  
used on VIDPOKR4 or to play the real thing in  
Atlantic City or Nevada.

Any Poker fan will really enjoy playing against  
the computer, or practice the winning strategy  
that is included with this game package.

*Model 4 with 128K and High Resolution Board  
Required*

\$19.95 (Y) S&H

Order from Computer News 80



ACCURATE  
SIMULATION OF A  
1930'S MILLS  
SLOT  
MACHINE

by J. F. R "Frank" Slinkman

Want to see a real rendition of a working slot  
machine on your Model 4 computer screen?  
Then SLOT4 is the one that will do it. True  
revolving dials for payoff, moving handle, with  
coin dropping sound.

Amuse yourself and your kids for hours on end.  
Entertain your guests at your next party with  
your computer by letting them play SLOT4.

*Model 4 with High Resolution Board Required*

\$14.95 + (Y) S&H

Order from Computer News 80



**GIF GRAPHICS FOR YOUR MODEL 4**  
by J. F. R. "Frank" Slinkman

Send GIF (Graphics Interface Format) high  
resolution graphics to and receive high resolution  
graphics from computers of different types with  
your Model 4 and GIF4MOD4 program.

A high resolution board is highly recommended,  
but not required. If you have a high resolution  
graphics board GIFMOD\$ will decode any GIF  
image up to 640 pixels x 480 pixels x 256 colors  
and put the image on your screen. If you do not  
have a hi-res board installed the program will  
convert the GIF format to a /HR format. Then  
with a High Resolution utilities packager available  
fro CN80 you can send the /HR picture to your  
printer.

This package also allows you to send GIF files.

#37.95 + (Z) S&H



## MINE FIELD

### EXCITING AND NEW GAME FOR THE TRS-80 MODEL 4.

by Richard VanHouten

Cross the mine field and flag all the  
mines in advance of your troops  
without going boom yourself.

Five degrees of difficulty, the more  
mines you flag the higher your score.

Fully serial mouse supported, but a  
mouse is not required.

\$ 12 plus S&H

# ARRANGER II

100% Machine Language Disk Index Program for the TRS-80 Model I, III, 4/4D/4P  
Automatically recognizes all major TRS-80 disk operating system formats.

The ARRANGER II written by Dan Foy almost ten years ago, is a master index system that automatically records the names of your programs, what disks those programs are on and the type of disk operating system the disk was formatted under.

Program Capacity..... 11,000 programs optimum, 8,000 typical, 255 filenames per disk, 255 disks per library data file.  
Disk Drive Compatibility..... Reads 5-1/4" or 3-1/2" single-sided or double-sided; 35, 40, 80 track, and is auto self-configuration.  
Functions..... Add Delete Scan View Find (Search) Print Rename Change Update Toggle Locate Manual Backup Exit  
Printouts..... Prints out three column 8-1/2 x 11 pages with your programs listed in alphabetical order or by extensions. Prints labels with Disk name, DOS type, and Type of disk, (system or data.)  
System Requirements..... Model I/III/4/4P/4D with one or more drives and 48K or more.

The greatest aid to keeping track of your disk library ever created for the TRS-80 computers. Your programs are printed in easy to read vertical alphabetized columns, unlike the horizontally alphabetized rows of the CAT program. You keep all your library on one disk in one library regardless of their DOS format type.

\$39.95

Add (Z) S&H



## MOUSEDOS

by Leonard Lorden

Load MOUSEDOS (Mouse Plus by David Gobin is required) and select an icon from the screen display. Disk Drive Icon, displays a new menu and mini-keyboard. Write your command line. Utility Icon, displays several DOS commands and utility icons, click the mouse on the desired command icon or click the Exit icon to return to the main menu.

Included are icons for AUTO, BACKUP, BOOT, CONV, COPY, FILTER, FORMAT, FORMS, LINK, LIST, REMOVE, RENAME, RESET, ROUTE, SET, SETKI, SPOOL, SYSTEM, VERIFY.

Fancy in appearance, easy to understand and use. A must for mouse users.  
\$ 25 plus S&H

## DOS (Disk Operating Systems)

MODEL 3 (or Model 4 in the 3 mode)

TRSDOS 1.3 disk only no manual \$ 7.00 (X)

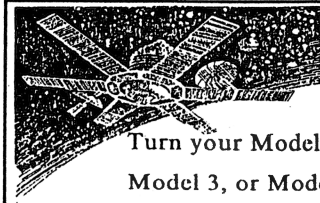
MODEL 4 or 4D or 4P

Operating System and Manual.

TRSDOS 6.2.1 \$ 45.00 (Z)  
New original TRSDOS manuals and system disks

Model 4 Owners Manual \$ 20.00 (Z)  
(Used. No operating system disks)

Add Shipping and Handling



Turn your Model 1,  
Model 3, or Model 4/4P/4D

In to a Programmable

Calculator with

## ASTROCAL

by VERNON B. HESTER

Designed for the student, or professional Engineers, lab technicians, accountants, real estate brokers, designers, anyone who does repetitive or complex mathematical calculations.

10,000 Program Storage Location, 84 Labels, 100 Addressable Memory Registers. True Algebraic Entry.

This unique product integrates mathematical programming functions in to a single convenient application. Develop scientific, financial and statistical programs with ease.

\$29.95 Add (Z) S&H

## SEIKOSHA SP-2400 9 Pin Printer

80 Column Printer  
300 Characters Per Second  
IBM and Epson Compatible  
Standard Parallel Interface  
Built-In Push Tractor & Friction Feed  
Easy Front Panel Controls  
Paper Parking  
Graphics  
Two year Manufacturer's Warranty

\$ 179

Add \$ 6.00 S&H, Shipped by UPS only.

Fully supported by CN80 and completely compatible with PostMaster, Rembrandt, Long and Loud and all the programs, published by CN80. Will work with any Model III/4,4P or 4D computer.

SP2400 Ribbons

CN1041 \$6.40 ea. \$5.90 six or more.

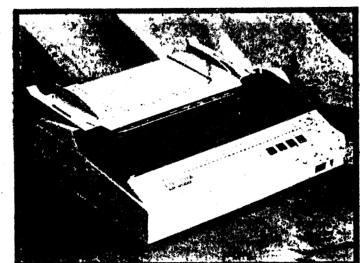
SL-90 Ribbons

CN1046 \$7.25 ea. \$6.75 six or more.

## SEIKOSHA SL-90 PLUS 24 Pin Printer

80 Column Printer  
240 CPS draft / 80 CPS LQ  
IBM and Epson Compatible  
Standard Parallel Interface  
Built-In Push Tractor & Friction Feed  
Easy Front Panel Controls  
Paper Parking  
Graphics 360 Resolution  
Two year Manufacturer's Warranty

\$ 279



SEIKOSHA  
A SEIKO GROUP COMPANY

# PostMaster *Computer News 80*

PostMaster by David P. Miller is a program that lets you create Posters, Letterheads and Mailing Labels with icons, borders, and many different character fonts using your dot matrix printer. The program runs on TRS-80 Model 4/4P/4D, with 64K or 128K of memory that has a MicroLabs or Radio Shack high resolution board installed.

This program has received the highest praise from reviewers of any program ever written for the Model 4. It allows you to use thousands of icons, borders, and fonts that are available from the File Cabinet Icon Library, it also allows you to add your own icons, borders and fonts.

Printers supported: Radio Shack DMP-130, -130A, -131, -132, -133, -430, -2100P, also any Radio Shack DMP printer with a 3-digit number with "3" as the second digit. All Epson and IBM printers. All other dot matrix printers that are Epson and IBM emulation printers. Seikosha SP-2000, -2000Plus, -2400. Okidata Microline 182 and 192. Panasonic KX-P1091, -1092, -1124, nonsuffixed. Star 10X, -15X, -NP, -NX, LC-10. C-TOH 1510, 8510, C-130. (Note - Dot Matrix printers providing 300-dpi or 180-dpi may not work with PostMaster and no guarantees can be made concerning them.

Printers that are not supported are: Radio Shack DMP-110, -120, -400, -500, -2100. Panasonic suffixed printers 1124i, 1124e, etc. Okidata 82, 92, and Daisy wheel printers.

Order from Computer News 80.....\$40.....add S&H (Z)

## IDE HARD DRIVES

by StanTech  
div. of Computer News 80

Interface Hardware Circuitry by  
Tim Worcester

Software by  
David P. Miller

Now you can have the latest in  
hard drive technology with your  
Model 4/4D/4P.

Complete with 4 foot hard drive  
cable, power cord and power  
supply in an external enclosure,  
and complete operating software.

Each Drive is custom built  
per order using Seagate Hard  
Drives - please allow 4 weeks  
for delivery.

42.8 Meg Byte           \$ 350.00  
for Real Time Clock  
installed add \$35.

*85 to 125 Meg. Drives are  
available but have some  
restrictions on the number of  
floppy drives and HD partitions  
that can be used, due to the  
nature of TRSDOS/LS-DOS.*

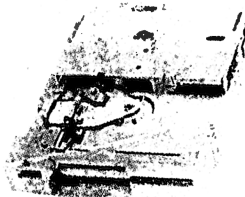
85 Meg Byte           \$ 400.00  
125 Meg Byte         \$ 430.00

Add \$ 6.00 S&H



## 5.25" Floppy Disk Drive

*Low Power Consumption Plus High Performance*



CUSTOM IC design in the read/write and control circuits gives maximum  
performance and low power consumption. A pop-up mechanism protects against  
mischucking upon disk insertion, allowing disks to be loaded/unloaded with ease.  
Chinon 5.25" floppy disk drives provide high speed access (3 ms)

DOUBLE SIDED HALF HEIGHT DRIVES  
Install in any Model 3/4/4P/4D



## 3.5" Micro Floppy

*High Storage Capacity*

Internal Half Height 5-1/4" 720K & 1.2 meg           \$ 89.95 (2)

\*This drive can not be used in a Model 4 Computer.

Internal Half Height 3-1/2" 720 & 1.44 meg           \$ 79.95 (2)

\*This drive can be used in a Model 4 Computer.

Internal Half Height 5-1/4" 360K                     \$ 67.00 (2)

\*This drive can be used in a Model 4 Computer.

Cables to connect internal drives                     \$ 10.00

Half Height filler plates                                 \$ 4.00

\*No S&H for cables and filler plates when ordered with drives.

• One Year Manufacturer's Warranty   Need more information? We welcome your calls.



## EXTERNAL DISK DRIVES

*From*

*Computer News 80*

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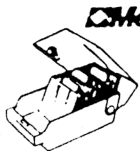
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Computer News 80  
Published Monthly.

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News Publishing Co.

Single issue \$4.00  
Subscription Prices:  
\$24 per year in US.  
\$35.50 per year in  
Canada. \$42.00 all  
others.

Mailing Address:  
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Classified Advertising  
Rates:

\$6.00 Minimum  
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